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THE

# NORTHWESTERN MILLER

*A Weekly Record of Current Milling Events, and Journal of the Flour and Grain Trades.*

VOLUME 16. NUMBER 2.

MINNEAPOLIS, MINN., FRIDAY, JULY 13, 1883.

$2.00 PER YEAR. 5 CTS. PER COPY

## ADVERTISERS' DIRECTORY.

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REMEMBER

Our wish is to please you as nearas possible to your liking, so as to nduce you to continue to favor us with your orders.

# WILLFORD & NORTHWAY,

## MILL BUILDERS AND FURNISHERS.

*CONSTANT USE HAS DEMONSTRATED THE SUPERIORITY OF OUR*

## MINNEAPOLIS + CENTRIFUGAL + BOLTING + REEL

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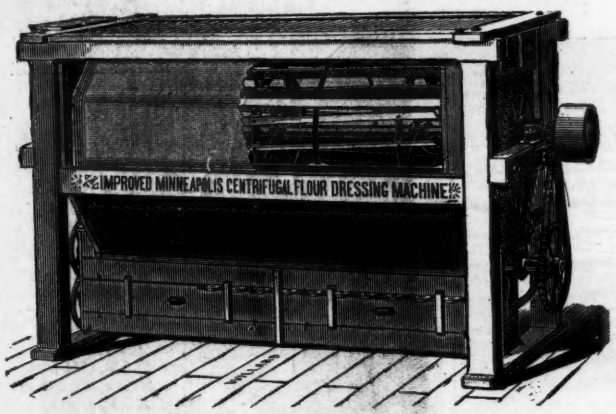
And estimates furnished for complete new Flour Mills, or for remodeling Stone Mills to the Roller Process. Agts for Allis-Gray roller mill.

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**1. THE SIMPLEST IN THE MARKET, AND YET**
**2 THE MOST POSITIVE IN ACTION, THEREFORE,**
**3 THE MOST DURABLE, AND**
**4. LEAST LIABLE TO BREAKAGE OR DERANGEMENT, THUS GIVING**
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***Every Machine Warranted and Thoroughly Tested Before Shipment.***

**"OLD SOCKS"** has struck a "cave of gloom" as all men will that think they can play their smart games on a lovely business widow, for it's a mighty cold day when such a one gets left. You see the way of it was, the young millwright who set the Centrifugal for "Old Socks" was sweet on the widow's daughter Mollie. So, when he called the next Sunday evening, the widow tackled him, and he told her all he knew. She was soon mistress of the situation, and her woman's wit quickly told her that a machine which would extract the flour from material that ordinary reels couldn't handle ought also to be excellent to dress flour on. Her Straight or Bakers' was a trifle specky and not quite as sharp as it ought to be, so she wrote WILLFORD & NORTHWAY for two Centrifugal Reels, a No. 2 for the crushed tailings, same as "Old Socks" worked, and also a No. 3 Centrifugal to dress her Straight flour on, as it comes from the chop reel. Well, sir, it was a success. Of course she matched the old man on the cleanness of offa and cleared him at a jump 50c. a barrel on her Straight, which was clear and granular as one could wish for.

P. S. You can't see her now, she's out on the street bulling wheat again.

**MORE TAFFY!**

*Office of J. W. Gift & Co., Globe Roller Mills, Peoria, Ill., June 25, 1883.*

*Messrs. WILLFORD & NORTHWAY, Minneapolis:*

*Gentlemen: Enclosed find draft in payment for No. 2 Minneapolis Centrifugal Bolting Reel shipped us May 29th. It gives us real pleasure to hand you this draft as your machine is making for us about eight dollars ($8.00) per day, having raised our Low Grade fully fifty cents a barrel over the old way of dressing it. Yours truly, J. W. GIFT & CO.*

***NONE OF OUR MACHINES WILL BE ALLOWED TO REMAIN IN USE UNLESS THEY ARE SATISFACTORY TO THE PURCHASER.*** In other words *their faithful performance and fine results are vouched for in every respect.* Too much time, labor and money (besides the wear and tear on our *brains, vast brains,*) have been expended on their development to allow any one of them to occupy a position where it will not do its own advertising perfectly.

**We Offer to the Millers of the Country our famous "GOLD RIBBON" brand of**

**Millers or millwrights changing mills over to the roller system, write us about our silk, for prices, etc. It will pay.**

## BODMER BOLTING CLOTH

**Millers who know the value of exact count in Bolting Cloth will do well to correspond with us.**

**MANUFACTURED AND IMPORTED EXPRESSLY FOR OUR TRADE.**

Our inspector rigidly requires the *best silk thread, great strength, full, square count, and evenness of mesh,* as we are well aware it is the only way to gain and keep the lead. The largest and best millers of the country are using our Gold Ribbon Bodmer Cloth and claim they can depend on its count when the best of other brands fail. Cloths made up with best twist and ticking, for 30 cents lineal foot of reel, and every cloth sent on its merits. Correspondence solicited, prices and discounts on application.

***To be continued in our next.***

**WILLFORD & NORTHWAY, Minneapolis, Minn.**

# A Large Portion of the Milling World is
# ALL AGOG
## OVER THE SUCCESS OF OUR "BISMARCK" MILL
### *And Our Plan of Combining them into a System of Milling.*

**The "AUTOMATIC ROLLER MILL FEED" about which so much is now being said, is to be found only on our "BISMARCK" except as we consent to put it on rolls of other makes, (which we are constantly asked to do.) It is of great importance that the breaks are made right and that the rolls work mechanically, easy, and quiet, yet it is of greater importance that all is right *ABOVE* the grinding floor. Two-thirds of the battle in roller milling is in the separations. This we have made a special study, and have the very best of talent for it. We give the miller just the size of rolls he wants for his capacity, (using the Ansonia roll) so that he pays for the capacity required and no more. Millers will do well to write us before closing their contracts with any firm.**

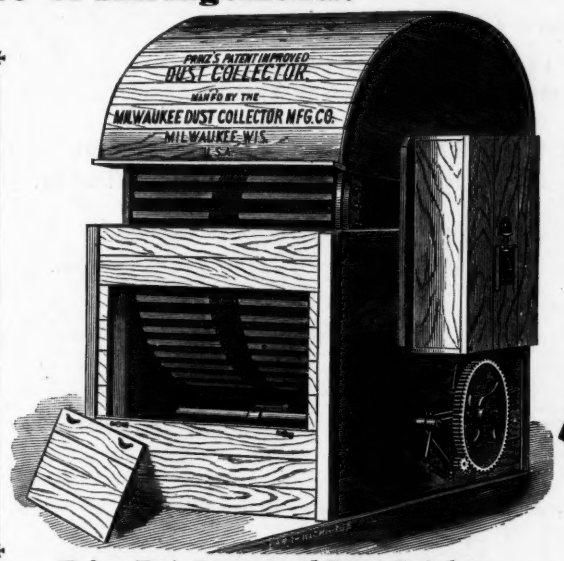
Millers visiting Chicago are invited to call on WM. E. CATLIN & CO., 57 South Canal Street, our Agents there.

**CASE MANUFACTURING CO., Columbus, Ohio.**

## The Liability of Dust Explosions in Mills
IS DONE AWAY WITH BY USING THE
# PRINZ PAT. IMPROVED DUST COLLECTOR
**IT IS AN ESTABLISHED SUCCESS.**

*The Back Draft Cleaning Mechanism, the only perfect device for keeping the cloth clean, exclusively used under the Prinz Patents.* **Beware of Infringements.**

Prinz Patents,
Nos.
272,473
272,474




**Prinz Pat. Improved Dust Catcher.**

**Prinz Pat. Improved Dust Collector with Fan Attachment.**

CONSOLIDATED
Licensees Patents,
Nos.
63,325
125,518
149,434
171,973
207,585
211,033
228,023
231,376
235,197
239,755
248,984
250,813
251,120
251,121
258,875
258,876
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259,872
259,873

*One Thousand Machines in Successful Operation. Machines in steady operation for over two years. Selling at the rate of 200 a month.* ***FULLY GUARANTEED.*** *Manufactured exclusively under the* ***PRINZ PATENTS.*** *Also licensed under all patents now or hereafter owned and controlled by the combined licensees, Geo. T. Smith Middlings Purifier Co. of Jackson, Mich., Kirk & Fender, Minneapolis, Minn., and Sam'l L. Bean of Washington, D. C.* **See Special Notice.** *License under all patents furnished purchasers. Send for circulars and testimonials, All correspondence promptly answered. You will save time, money and labor by using this machine.* **Every Miller Should Have It.** *Remember it is the* ***BEST.***

**MILWAUKEE DUST COLLECTOR MFG. CO., Milwaukee, Wisconsin, U. S. A.**

ESTABLISHED 1834 **SNOW'S WIRE WORKS** ESTABLISHED 1834.

SUPERIOR QUALITY OF
## Tinned Wire Cloth and Wire Belting Cloth
FOR BRAN DUSTERS AND FLOUR MILLS.

Send for Samples and Prices. Wire Cloth and Wire Work of every description manufactured by

**JOHN SNOW, 69 and 71 Exchange Street, ROCHESTER, N. Y.**

Send for Catalogue and Prices.

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INDIANAPOLIS, IND., U. S. A.
MANUFACTURERS OF
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CARRY ENGINES and BOILERS IN STOCK for IMMEDIATE DELIVERY

All inquiries for Atlas Engines in the Northwest should be addressed to **SHATTO & DENNIS** Minneapolis, Minn. who are sole agents for MINNESOTA, DAKOTA, and TERRITORIES WEST, and carry a full line of Atlas Engines and Boilers. Also a full line of SAW MILLS for immediate delivery. All kind of Machinery, Pulleys, Shafting, Belting, &c. Send for circulars.

SHATTO & DENNIS, Minneapolis, Minnesota.

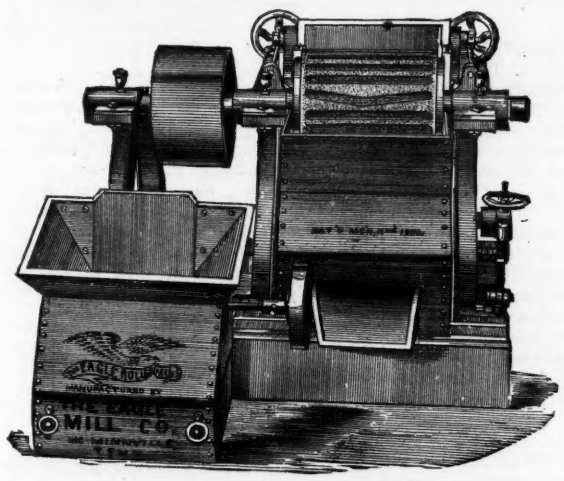
# The EAGLE MILL COMPANY

## Mc MINNVILLE TENNESSEE

Sole Manufacturers and Proprietors of the

# Eagle Stone Roller Mill

—AND THE—

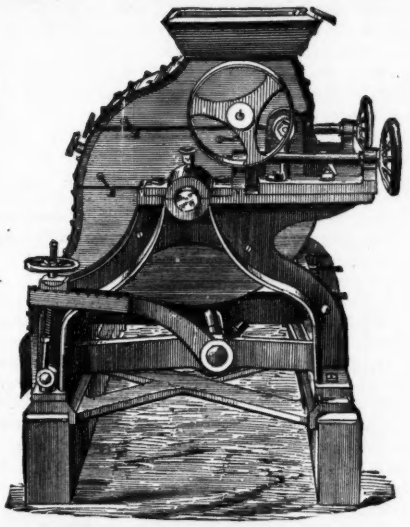



## Rising Sun Purifier

The Highest Results and Satisfaction Guaranteed.

Thirty Days' Trial Allowed to all Purchasers.

*The* ***EAGLE STONE ROLLER*** *has no equal for regrinding either first, second or third Middlings or Bran. Beats any Metal or Porcelain Roll. Guaranteed to do so and Fifty per cent. cheaper, quantity and quality considered. Have hundreds in use and certificates in abundance proving our claims. They grind perfectly cool and even, and are easily kept in order.*



# THE RISING SUN PURIFIER

*ENTIRELY NEW PRINCIPLES.*

**No Middlings Purifier on Earth will half-way equal the "RISING SUN" on any grade of middlings. The same machine is the best Scalper ever offered to millers. Has more capacity with less power and space required.**

***This Machine Will Do More Than Twice as Much Work as Any Other Purifier & Scalper.***

**Sold for about half the money of any other machine for the same purpose. Thirty days' trial allowed to purchasers. Address**

**AGENTS:** TALBOTT & SON, RICHMOND, Va.
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EAGLE MILL CO.,
MC.MINNVILLE, TENN.

NORTHWESTERN MILLER

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MINNEAPOLIS, FRIDAY, JULY 13, 1883.

THE number of millers failing during the first half of 1883 was only thirty-nine according to the report issued by Bradstreet's agency. Considering the state of the wheat market during that period and the uniformly small profits of flour making, this is a wonderful record. Of course, should an unfavorable state of things continue during the remainder of the year it would undoubtedly bring about a much larger number of disasters, as concerns that have suffered losses during the first half of the year, which they have found themselves strong enough to endure, would undoubtedly reach their limit before the expiration of the last half. But even the least hopeful members of the trade do not anticipate any such long-continued period of depression and confidently predict that the coming in of the new crop will bring with it an entirely new state of things and a consequent resumption of profitable milling.

* * *

A CORRESPONDENT whose opinions we have always set a high value upon, writes as follows regarding the wheat situation and the prospects for next seasons' markets: "With regard to the position of American breadstuffs abroad the coming season, it would not be safe to make any predictions at present. Europeans are beginning to tire of the manner in which speculators place a fictitious value on food products over here. So that the wheat growing nations of the world are taking the hint thrown out by the European press and are augmenting their former supply, to an extent that will make it an extremely difficult matter for our agriculturists to compete with them. It is no idle vaporing when we hear of India and New Zealand as competitors in the European markets, and although their systems of handling grain are yet crude, they may also take a lesson from us in that respect and turn on us with our own weapons. If we look at the progress which we have made as an exporter to England during the ten years from 1871 to 1881, we will find that a great deal may be laid at our own doors. From '71 to '81 the United States exported to England 52.6 per cent of the whole imports and Russia 17.3 per cent, but the showing for the first four months of the present year does not appear so rosy, and the general crops in Europe and India are above the average. The cholera in Egypt may prevent shipments from that country for some time but taking it on the whole, we may rest satisfied that the demand from Europe may not be expected to attain very large proportions the coming year. Our millers will not be losers in the matter, as just now American flour is gaining a reputation and if we send the manufactured article instead of the raw material we will take the latter in a certain measure out of the domain of speculation, and put the flour in its proper place, as the general staple for export. It is a somewhat difficult thing to draw the line between legitimate and illegitimate speculation. There are few principles more fully accepted in theory than that a man may do what he likes with his own, and that those who have capital may trade upon the necessities of their neighbors *ad libitum* the commercial law being to buy cheap, and sell as dear as possible. Notwithstanding this, there is a kind of speculation which is very baneful and none more so than that of those who would create a famine in breadstuffs to subserve their ends. The great trouble with us lies in the fact that our markets are more or less controlled by speculators so that we have to keep a sharp look out, to be able to keep control of the foreign demand which we have. The price of grain is too often artificially raised on this side by speculators who, in attempting to "corner" the markets in England and on the continent of Europe, often get cornered themselves, as those countries are not entirely depending on us for their food supplies. They encourage the growth of extra crops in Russia, Egypt, India, New Zealand and Chili, and those countries are gradually and insidiously making a market in places where we are losing in consequence of this speculation aided as it is by the railways, in keeping up freights. So that between the two stools of grain syndicates and railroad combination, the American grain grower and miller often come to the ground. In order to maintain our position, we must be able to compete with nations that can raise grain cheaper than we, and in order to do this farmers and millers cannot allow themselves to be hampered with either speculators or railroad magnates, even if the government had to take the matter in hand to put an end to gambling, and exorbitant freight rates."

* * *

A LARGE farmer and accute observer writes us as follows regarding crop prospects in southern Minnesota and western Dakota. "The crops are looking fairly well, though they are *not* immense as many would tell you. The fact is, farmers are prone to run to extremes, and to hear them talk you would think that there never were such prospects before. Such is not the case in this section, though the wheat promises to be a fair crop. There has been a little too much rain for it so far, but it exactly suits oats, which will be very heavy. Barley looks fairly well; corn very small and will hardly make a crop." Our correspondent touches on one of the noticeable peculiarities of farmers which has considerable effect on crop reports. If prospects are fair they say they "never were better" and if they are unpromising, "grain won't pay for harvesting." The yield in the northwest promises to be above the average, and taking into account the increased acreage, to be better than for several years past, but we do not look for any avalanche of grain such as some of the sanguine class are predicting. If our farmers have a fair crop, and our mills all they need to grind, all classes should be satisfied.

* * *

THE reports of the patent office begin to to teem with bran packers, compressors, or consolidators. Their inventors have a difficult problem, but nothing is impossible to modern mechanics and we shall soon have, beyond a doubt, a practical machine for compressing bran into suitable shape for exportation.

* * *

MILLERS frequently say: "I don't care anything about a bran compressing machine. I don't export anything and can't see what benefit it will be to small millers," which shows the brevity of human vision. If the large mills do export their bran to Europe the market at home will be left free for just so much more bran and offal from the smaller ones and to that extent profitable milling will be increased. If enough bran is exported to close a hundred or a thousand European mills, (and many of them could not run were it not for the ready sale of their offals at high prices) American mills will have just so much more to do. This is the reason why a bran compressing machine is needed by the whole trade and why it will be just as beneficial to the millers who never see it as to those who buy it and use it.

* * *

HAS it occurred to any of the inventors and advocates of bran compressing machines to figure on the probable gain through the use of such machinery? When they come to estimate it they will find the margin extremely small, unless the railroads experience a decided change of heart. At present, with an ordinary bran packer, it is easy to get 224 pounds of bran into a sack, ten such sacks making the ton of 2,240 pounds, which is the rule in Europe. In this form rates of freight can be secured as low as on flour to the seaboard. Compressed bran can go at no better rate under present tariffs. On the ocean a difference of about seventy-five cents per ton can be obtained in favor of the compressed article. So at present we have this seventy-five cents on one side of the account and the extra expense of compressing the bran (whatever it may be), on the other, with a good demand in existence for non-compressed bran on the one hand and a prejudice against the compressed article on the other. We are not croaking, but are stating the facts just as they exist. To make bran compressing possible and profitable the railroads must discriminate in its favor and the British and continental public must be educated up to its use. Here is good work for the National Association.

* * *

BY the decision of the supreme court of Canada which we publish elsewhere, it will be seen that the Smith patents have been adjudged valid in the Dominion and that their opponents are let in for heavy damages for infringing them. The case was on appeal from a lower court and was heard and passed upon by Sir William Johnstone, chief justice, and a full bench. The defendants, Messrs. Goldie & McCullough, set up two patents of earlier date (in the Dominion) than Smith's and pleaded previous use of the devices claimed by the latter, but after a protracted hearing, in which much evidence, pro and con, was introduced, the judgment routed the infringers completely and left them nothing to fall back upon except the mercy of the Consolidated Co., the owner of the Smith patents, the quality of which is pretty well known this side of the line. Those familiar with the former policy of the company and cognizant of the fact that two decisions had been given against them in lower Canadian courts, were confident that the case would never be pushed to an issue. The effect on suits in the courts of the United States would certainly have been disastrous had a decision declaring the Smith patents invalid been obtained. But the policy of the company now seems to be to fight every case to the bitter end, relying on its early and numerous patents, its great money backing, and the skill of its lawyers for success, and then showing no mercy to the vanquished.

* * *

As lack of space prevents our publishing all of Messrs. McDougall Bros'. report on Indian wheat, we are unable to review it until our next issue, when the remainder will be given.

* * *

THERE is considerable grumbling about the early government crop reports. It is strongest and more of the tone of thunder and lightning from the speculators who have been on the wrong side of the market. It should be remembered that the government reports are reports and not prophesies, and that they do not take into account what may happen, but rather the exact condition of things at the time these reports are made. The government statement shows the popular observation, tinctured with popular feeling, at the time at which it is made up, and those of last spring were certainly not amiss in this respect. In connection with the development of a crop, there is one thing which must not be forgotten; and that is, that when nature is particularly hard on a crop at one end of the season, it is reasonably sure to exert a great compensating influence at the other end. Take the winter wheat crop now being harvested as an illustration. There were the hard winter and early spring months to commence with, and be it remembered that this was the only possible basis for the government reports. Following these hard months was the splendid wheat weather, which has done everything possible to repair the damage. Of course it has not fully made up for what has passed, but it has done more than the average mind was capable of realizing, when viewing the facts of a few months ago.

* * *

THE prohibition party in Minnesota, following the example of their Ohio brethren, have recognized the milling interest in their recently nominated ticket by the selection for governor of Mr. Charles Evans Holt, until recently connected with the Pray Mfg. Co., and for secretary of state Mr. C. B. Shove, secretary of the Millers' and Manufacturers' Mutual Insurance Co. As neither of these estimable gentlemen are quite so closely connected with the milling trade as the republican nominee for governor, Mr. L. F. Hubbard, the present incumbent, who is president of the Mazeppa Mill Co., we doubt if the prohibition ticket will derive any substantial aid from the source mentioned. We are glad to note, however, that the prohibitionists have the worldly wisdom to recognize the milling trade. It has been a long time since the election of a state ticket not headed by a miller has occurred in Minnesota.

* * *

THE *Milling World* winds up a column of chaste praise of the editor of the NORTHWESTERN MILLER, (which is its simple and beautiful answer to our timid charge that matter was absorbed from these columns and printed in those of the *World* with very slight change, and with the credit unaccountably omitted) with the following delicate compliment. "Such wanton abuse and vilification cannot harm us, and is only disgraceful to, and characteristic of the unripe editor, who therein, for a moment, reveals the true inwardness of his make-up, stripped of his garment of borrowed respectability." Some people would not notice it, but our acutely trained senses detect a certain indefinable strain of annoyance running through this tender tribute, like a haunting discord in an ocean of melody. Can it be that the editor of our advanced contemporary envies us that garment, borrowed though it may be. Perhaps it recalls dim memories of one of his own,—though that is hardly possible, as both history and tradition agree that he never possessed anything of the kind.

## LOCAL & PERSONAL.

Extreme dullness and inactivity continue to characterize the milling business, the present week being even a little more "off" than usual. The production of flour by the mills of the city will be comparatively light, but fully large enough to suit the views of our millers. On Tuesday there were twelve mills in operation, out of the twenty-two, and the production will average about 10,000 barrels per day, against 7,500 barrels last week, the latter low figure resulting from the week containing a holiday. The flour markets are less favorable than a week ago, there being comparatively no inquiry from abroad. They were apparently picking up to some extent at the close of last week, but were again greatly depressed by the break in wheat at Chicago which followed.

The wheat stored in Minneapolis elevators, including the transfer elevator, on July 10 was 1,262,000 bus. There were about 475,000 bus. in the mills, making the total amount of wheat in store in the city 1,737,000 bus., against 1,575,000 bus. last week. The wheat stored at St. Paul is about 218,000 bus. The wheat in store in Duluth elevators is 330,032 bus.

The following were the receipts and shipments at and from this point for the five days ending July 11, and corresponding full week last year:

| | | Received. | Shipped. |
|---|---|---|---|
| Wheat, bus.— | 1883 | 224,000 | 17,950 |
| " " | 1882 | 133,500 | 27,500 |
| Flour, bbls.— | 1883 | 750 | 47,834 |
| " " | 1882 | 1,625 | 26,007 |
| | LAST WEEK. | | |
| Wheat, bus. | | 325,000 | 17,500 |
| Flour, bbls. | | 822 | 62,475 |

* * *

The Holly mill was shut down part of the week.

C. A. Pillsbury was expected home Friday or Saturday.

Jas. Kennedy, on the east side, is working seven men this week.

The Columbia mill is shut down this week, but will probably start up again Monday.

J. B. A. Kern, the Milwaukee mill owner, was in the city the first part of the week.

The Pettit mill shut down Saturday night for the week, but will resume operations Monday.

Otis A. Pray is one of the incorporators of the Porter Steam Heating Co., of Minneapolis.

Capt. Holmes, of the Northwestern mill, was quite sick last week, but is again in fair shape.

J. L. Willford went to Baraboo, Wis., the first of the week to start up the mill his firm has been improving.

H. E. Young went to Lisbon, Dak., this week to superintend the millwright work on the Weisner mill for Shuler & Co.

The Pray Mfg. Co. this week sent a crew of millwrights to Chippewa Falls, Wis., to begin overhauling the Newton mill.

W. P. Northway is out on a trip this week, Grand Rapids, Madison, and *Fort Atkinson*, in Wisconsin being objective points.

The Phœnix mill is adding a couple of Smith purifiers to its machinery. It was down Tuesday, from burning out its water wheel step.

Mr. E. B. Andrews, formerly manager of the Millers' Association, is at present connected with the Washburn mills, he being wheat man for the same.

We were mistaken last week in saying that Mr. Kittridge had charge of the electric light apparatus of the Pillsbury A mill, T. C. Hughes holding that position.

The Washburn C mill was expected to shut down toward the close of the week, in order to admit of some repairing. The period of idleness will be from ten days to two weeks.

Messrs. Willford & Northway have filled orders for the Minneapolis centrifugal reel to Rambo Bros., Dresden, O., (4); Ordway & Son, New Cassel, Wis., and an Indiana firm.

The Pray Manufacturing Co. have sold 97 double sets of Livingston rolls to Minnesota millers within the last three months, which showing they think cannot be beat, or even equaled.

Wm. Poole, the millwright, is back to town, and is getting ready to take charge of the building of the 200 barrel mill at Crookston, work on which will be commenced in about two weeks.

Geo. Burridge, who is now traveling for the Noye Mfg. Co., spent the major portion of last week in the city, his family being located here. He makes Michigan the chief field of his labors.

John Brewis, the draughtsman, is now at Hastings helping on the Espenchied elevator, the foundations for which are in. Chisholm Bros. & Gunn have put C. W. Jones in charge of the construction work.

The shipments of flour from Minneapolis for May and June this year were 135,614 barrels greater than they were during these months last year, being 481,250 barrels this year against 345,636 barrels in 1882.

The Olmsted electric light plant is now in running order at the works of the Pray Manufacturing Co., the latter being lighted by it, and all interested in the matter are invited to call and see the working of the Olmsted light.

W. F. Gunn has acquired the interest of J. C. Menor in the National mill, is now sole owner. The National is now shut down, and it is doubtful that it will make any more flour before harvest. It may however do something in the feed business.

The "Royal Route" is now running its beautiful dining cars clear through from Chicago to Minneapolis. These are the handsomest dining cars, it is stated, that are run by any road in the world and will prove a great attraction to the traveling public.

The *Pioneer Press* last Saturday estimated the wheat in store in the mills of the city at 900,000 bushels. As the mills will not hold, as we have the figures to show, over 725,000 bushels, we conclude that some interested party has been giving the *P. P.* taffy.

Wm. Sherer visited Aberdeen, Dak., last week to start the millwright work on the new mill of S. S. Pratt & Co., of 250 barrels capacity, and in which C. F. Hatch, the railroad man, is interested. Thos. F. Sherer, a brother of "Billy's," is the foreman millwright.

Col. F. U. Farquhar, the civil engineer who, in 1873, was given charge of the improvements to the falls of St. Anthony, the concrete dyke across the river under the ledge being constructed under his supervision, died at Detroit, Mich., of Bright's disease, on the 3d inst., at the age of 45 years.

Jas. Pye, milling engineer for the Pray Mfg. Co., is kept busy on the road most of the time. In the past two weeks he has taken contracts for building three mills, which include the furnishing of everything. These mills are of 175, 150 and 100 barrels capacity respectively, and we may have more to say about them shortly.

What might have been a serious accident in the Crown Roller mill on Monday, ended in rather a comical manner. Machine Tender Ripper ascended to the top of a purifier to run a belt on a shaft overhead. While standing, reaching upward, one leg of his trousers was caught by a set screw in the fan shaft, and as quick as a flash they were taken off and twisted around the shaft, leaving the young man in rather a "picturesque" condition, to say the least. Those on the same floor started to call the police, but on second thought concluded not to do so, as he was hardly responsible for his appearance.

Quite a squabble took place on 'change Friday, over the election of H. G. Hicks, one of our prominent lawyers and a member of the legislature. His name was several times balloted upon, each time being blackballed. To get even, the friends of Mr. Hicks blackballed several other prominent candidates being voted upon at the same time, declaring their intention to keep everybody else out until Mr. Hicks be admitted. The opposition to Mr. Hicks is based upon his connection with a bill passed by the legislature last winter pertaining to commercial bodies, it clothing the directors with too exclusive power to suit a good many members.

E. A. Holdridge, a member of the firm carrying on the coarse grain warehouse at Murdock, Minn., has been arrested at the instigation of Chas. McIlrath, of the St. Paul firm of McIlrath & Gilbert, on the charge of giving a fraudulent warehouse receipt for 6,000 bushels of oats Jan. 2. It appears that these oats were not in the warehouse at the time, and to square matters, Holdridge bought them back by giving his note in payment, but when the note came due he had no money. His story is that he became involved in the trouble from his having in business with him a cousin named Britton, who stole $4,000 out of the concern, and then left. Holdridge hopes to fix the matter up and save himself prosecution.

A plan fast coming into vogue among our millfurnishers, already being largely practiced, is that of constructing all the parts possible of small mills at home. For instance, the building of bolting chests, elevator heads and boots, and many other parts which require comparatively skilled labor to do. This obviates the necessity of sending out so many high priced workmen, it usually being practicable to obtain good carpenters at the place where the mill is located, at lower wages, to complete the work. Of course, there have to be some experienced and skilled men on these jobs to supervise them. Another saving is that of the cost of transporting men from place to place, the expense of shipping the finished parts of mills and the raw lumber, being about equal. Millwrights, too, are willing to work for less if they can be at home with their families than if they have to go out of town.

The St. Anthony mill was shut down the middle of the week, and before it again starts up a change will probably occur in the firm owning and operating it—at present Wheeler, Hineline & Co. The firm is composed of S. H. Wheeler, of Chicago, Geo. Hineline and W. G. Plank, of this city, Mr. Hineline being a practical miller and acting as manager. Some months ago Mr. Hineline's health was impaired to such an extent as to preclude his looking after the mill, and there is no prospect of his being able to give it the needed attention, while Mr. Plank, the office man, who has managed the business in Mr. Hineline's absence, has been recently taken ill. Mr. Wheeler, the Chicago partner, has come on, and some change will undoubtedly be effected before his return. It is believed that both Mr. Hineline and Mr. Plank will go out of the firm, and it is not improbable that Mr. Wheeler will also do so if he can find a purchaser of his interest. He is a gentleman of very large means and abundantly able to operate the mill and carry on the business, but does not care to do so without the aid of a practical partner.

L. W. Pruss, the well known furnisher, has gotten up a middlings purifier for which he claims some important points, the principal one being greatly increased capacity. This purifier will come under the classification of an air machine, no sieve being used, but regulated blasts of air doing the work of purification. At the top of the machine is located an ordinary reel for grading the middlings, this being done by the use of different sizes of cloth. After the middlings are graded, they drop into the purifier proper, where they are subjected, as they pass over inclined boards, to blasts of air of varying strength as their respective sizes may require. The middlings pass out at the lower side of the machine, being graded and purified, Mr. Pruss claiming to be able at one operation to do the work of three or more machines. He says that his purifier will grade and purify 1,200 pounds of middlings per hour, or do three times as much work as an ordinary purifier of the same length. The purification, too, he claims to be more perfect, in that the middlings are evenly graded by the reel before being touched by the blast, making possible the more delicate adjustment of the air currents on the different grades. Mr. Pruss has the machine in operation at his shop, corner of Sixth ave. and Second st., and after he gets his patent out will perhaps furnish us with further details of its construction.

Among the snug little roller mills that Willford & Northway have recently built is that of the Manning Bros., at Quincy, Ill. This mill has a capacity of 100 barrels, and is a model little institution, rolls being used exclusively. The building, a substantial brick structure, is 28x60 feet, and is divided into basement, three stories and attic. At one side is an elevator with a capacity of over 10,000 bus. In one end of the basement of the mill is the engine, a slide valve, while the boilers are outside. The remainder of the basement is taken up by the main line shafting, a wheat sink, a smutter, a brush, and the elevator boots, the elevators all extending to the basement. On the first floor are 14 pairs of Allis rolls, 2 packers, hopper scale, etc. Seven pairs of the rolls are corrugated, 3 porcelain, and 4 smooth iron. The second story contains 3 Smith purifiers, 6 five foot scalpers, 6 sixteen foot silk reels, and flour and offal bins. On the third floor are 3 Smith purifiers, 3 Minneapolis centrifugal reels, 2 sixteen foot reels, and bran duster. In the attic is the usual shafting, etc. The mill makes four grades of flour at six breaks, and is in charge of David A. Ward, a Minneapolis miller. This, and the fact that Willford & Northway built the mill, furnishing everything, should be a sufficient guarantee of the best results. A. C. Brenchley was the foreman millwright. The mill was completed, and started up June 18, its work meeting the highest expectation of all.

## The Milling World Again.

In our issue of June 22, we published some extracts from the *Milling World* side by side with matter which had previously appeared in the NORTHWESTERN MILLER and which justified, we thought, the charge that some writer or writers on the *World* was systematically pilfering from our columns valuable technical matter, for which we paid good money, and giving us no credit for the same. Among a large number of examples quoted by us were the following, which we select at random from half a page of similar matter:

The methods described will show that a very large number of operations are necessary in carrying out the scheme of Hungarian milling. It can also be seen that an absurdly large plant would be required to carry out this scheme in an automatic mill. This difficulty is obviated in their milling by the methods of handling the stock by hand, which render it possible to use one machine for various kinds of stock. One purifier may be used to purify any number of grades of middlings, by merely changing the sieve cloths. —*Northwestern Miller, Feb. 16.*

"The size of the wheat exerts a marked influence on the operation of the mill. A change from large to small wheat of the same quality and variety as often happens will largely increase the feed on the mill and give relatively higher grinding, which will exert a marked influence on the separations." — *Northwestern Miller, Dec. 8.*

"That part of the machinery which relates to the cleaning of bran, should be a mill in itself, having no connection with the higher grade products in the making of flour, though it may have in the final mixtures." — *Northwestern Miller, Jan. 26.*

"Hungarian mills carry the grading of middlings to a much finer point than is practicable in the automatic mills in this country. This is rendered possible by the large extent to which hand labor is employed in handling the stock, making it feasible to employ a single machine on several grades of material. The sieve cloths of the purifiers are made interchangeable so that one machine may be used to purify any number of grades of middlings, simply by changing cloths."—*Milling World, May 31.*

"A change in the size of wheat makes quite a difference in the operation of a mill. For example, if it has been running on large wheat, smaller wheat of the same quality would cause a considerable increase in the feed and make the grinding relatively higher. This in turn would have a marked effect on the separations."—*Milling World, May 31.*

"That part of the machinery which is connected with cleaning the bran should form, practically, a mill by itself. It should have no connection with the higher grade products in the making of the flour, though it may have in the subsequent mixtures."—*Milling World, May 31.*

It will be observed that these extracts are from a single issue of the *Milling World*, and but two issues of that journal were quoted from in the article mentioned. Of this article the *World* says: "To anyone who has examined the comparative reprints, the baselessness of the charge and the abortiveness of the attempt to prove it must have been apparent." The *World* then admits the identity of the last two paragraphs compared above, but denies that the others have any similarity, except, perhaps, in the case of one which they do not specify. We submit the question to our readers. We will now take up the next issue of the *Milling World*, that of June 7, where we find the following paragraphs:

There is often a temptation to put machinery in the basement. But where there is not good light, any more than is absolutely necessary should be omitted. The absence of light is not conducive to cleanliness and dark disagreeable places are not attended and cared for with the same interest and efficiency as the more pleasant and better lighted parts of the building.—*Northwestern, Miller April 20.*

The cleaning machinery was placed in one end of the building separated from the other part of the mill by a brick wall. This of course is the common method in all large mills, which have been built during recent years, as it is the safest and best method, etc —*Northwestern Miller, April 20.*

The system of returning from one reel or purifier back to a reel or purifier, from which such stock originally came, does not meet with favor in modern milling. It is against the best ideas of separation. It is tolerated in some good mills, in connection with purifiers and its effect is not regarded as the same as it would be in the case of the softer product of the reels. It is done for the purpose of stocking the machine. The value of sieve action will never be realized unless the sieve is covered.—*Northwestern Miller, April 6.*

"Several days ago I saw where a cockle machine was placed after the smutter, and for this reason it was taking out a considerable portion of broken wheat which would otherwise have gone with clean stock." — *Northwestern Miller, Apr. 27.*

It is poor policy to put machinery in the basement of the mill. The principal objection to this locality is that it is generally dark, and darkness is generally apt to cause negligence as to cleanliness. Besides, the machines will inevitably receive less attention than if they were in a better lighted, pleasanter part of the mill.—*Milling World, June 7.*

Cleaning machinery should invariably be placed in a department by itself, separated from the rest of the mill by a solid brick wall. This plan of arrangement not only diminishes the fire hazard, but has several other important advantages.—*Milling World, June 7.*

It is but a poor plan at best to return from one reel or purifier back to the one from which the stock came originally. It doesn't need any argument to prove that. Still it is allowable in the case of purifiers when there would not otherwise be material enough to enable the machine to do its work effectively, as it is of prime importance that the sieve should always be completely covered. This is true whatever purifier may be in question.—*Milling World, June 7.*

"The cockle machine ought to be placed before the smutter, as otherwise it will remove broken grains of wheat as well as the cockle." — *Milling World, June 7.*

There are as many more instances of similarity in the same issue of the *World*, but we think those quoted are sufficient to justify our complaint. Had we the time or inclination to examine our file of the *Milling World* and compare it with that of the NORTHWESTERN MILLER for the past six or eight months, we could fill this page in a very short time, but we have given enough space to the matter for this issue. The "meagre intellectual resources of the NORTHWESTERN MILLER" are fully sufficient to protect its pages from the assaults of ignorant and vicious writers and the *World* will do well to take timely notice of the fact. We desire to say right here that we attach no blame tothe publisher of that journal for its predatory policy. He is an upright and honorable gentleman, who had he the necessary time and technical knowledge to examine the matter given to the public as original under the sanction of his name would at once put a stop to such disgraceful exhibitions of shiftlessness and disregard of the common rules of newspaper and business courtesy. Our regard for him will not, however, prevent our protecting ourselves from imposition and abuse, and we shall do it vigorously and effectively. We dislike personalities in journalism and have never indulged in that kind of warfare, but if the editor of the *Milling World* is inclined to evade our specific charges by entering into a discussion of that nature we can and shall make it exceedingly interesting for him.

In an $80,000 fire, on the 5th, at Evansville, Minn., which nearly wiped the town out of existence, Pillsbury & Hulbert's elevator had a narrow escape from destruction. Isaac Davidson's flour and feed store was burned, causing a loss of $1,000, on which there was an insurance of $800. Considerable wheat is yearly handled at Evansville, there being three elevators of 180,000 bus. capacity. There was about 40,000 bus. of wheat stored in them at the time of the fire.

## Report on India Wheat—I.

The following report (alluded to in our last issue) was made by order of the department for India, and in the interest of the wheats grown in that country. It has received very extensive circulation in Great Britain. Our comments thereon will be found in the editorial columns of this issue.

*To the Secretary of State for India.*

My Lord: We have the honor to report upon the Indian wheats comprised in the four lots delivered to us by your brokers, Messrs. Harris Brothers & Co., which we have operated upon according to instructions contained in your Lordship's communications to us of 8th October and 25th October, 1880, and supplemented by the verbal instructions made to us (we beg to refer to these communications and to our replies of 22nd October, 26th October, and 24th November, 1880). These instructions were to the effect—

I. That we should take a given quantity of each of these four representative Indian wheats, viz.,—

Indian, fine soft white, | Indian, average hard white,
" superior soft red, | " average hard red,

and manufacture them into flour by the ordinary process of grinding under millstones. Also that we should take similar quantities of the same wheats and manufacture them into flour by means of crushing between rollers, according to the system known as the Hungarian or roller system.

II. That we should take a given quantity of each flour so produced and manufacture it into bread.

III. That we should note the qualities and other characteristics of the flours produced, also of the offals, viz., middlings, pollard, and bran.

IV. That we should procure the following representative wheats, of fair average quality of the season, as then being sold on Mark Lane market, and, for the purpose of obtaining results for comparison, deal with them precisely as above indicated, both as regards flour, bread, and offals, viz,;—

| | |
|---|---|
| English average. | Russian, Taganrog. |
| American (red winter). | Russian, Kubanka. |
| American (spring). | Russian, Ghirka. |
| Australian average. | Egyptian, Buhi. |
| Californian average. | Egyptian, Saida. |
| Russian, Saxonska. | |

*Note.*—Of the two latter qualities of Russian wheats, Kubanka and Ghirka, none was to be obtained in London or other English markets, and consequently cannot be included in this report.

These operations have all been carried out with due care and precision, and under the personal supervision of one of the members of our firm, during the whole period occupied until their completion.

We beg to report as follows:

The quantity of each wheat operated upon by each system of milling was 5,000 lbs., as delivered from the ship (weight of sacks or bags not included).

The results obtained are stated in the following tables, which are followed by tabulated synopsis (see page 31) for convenience of ready comparison.

### WHEAT.

*Lot 1.—Indian fine soft white.*

Quality—Fine soft white. (White, medium sized, skin thin, clean, and regular, free from seeds; 2 per cent weeviled; handled exceedingly well.)

Value in London 49s. per 496 lbs.

Weight per bushel, 64 lbs. (This weight is only equaled by 'specially fine samples of any wheat.)

Weight of 100 separate grains of the wheat, 55.4 grains avoirdupois. (100 weeviled grains weighed only 39.69 grains avoirdupois.)

1. *System.*—Grinding under millstones.

| Quantity operated upon, 5,000 lbs. | per cent. | |
|---|---|---|
| Enter quantity treated as | 100.0 | |
| Impurities removed | 1.52 | |
| | 98.48 | |
| Water absorbed to render mellow | 2.0 | |
| | 100.48 | |
| Yield: flour | 77.46 | (A high yield, |
| " middlings | .82 | fine white color, |
| " pollard | 8.80 | and superior |
| " bran | 12.0 | bloom.) |
| | 99.08 | |
| Evaporation and loss | 1.40 | (See Notes, page 31.) |
| | 100.48 | |
| Gluten, by water test, when damp | 16.4 | |
| Ditto, ditto, when dry | 6.4 | |

2. *System.*—Crushing between rollers.

| Quantity operated upon, 5,000 lbs. | per cent. | |
|---|---|---|
| Enter quantity treated as | 100.0 | |
| Impurities removed | 1.52 | |
| | 98.48 | |
| Water absorbed to render mellow | 2.0 | |
| | 100.48 | |
| Yield: flour | 72.2 | (An exceedingly |
| " dark ditto | 1.9 | high yield, fine white color, and |
| | 74.1 | superior in |
| " middlings | 11.0 | bloom.) |
| " pollard | 8.7 | |
| " bran | 4.0 | |
| | 97.8 | |
| Evaporation and loss | 2.68 | (See Notes, page 31.) |
| | 100.48 | |
| Gluten, by water test, when damp | 20.2 | |
| Ditto, ditto, when dry | 6.8 | |

*Lot 2.—Indian, superior soft red.*

Quality—Superior soft red. (Color dull light brown, with about 5 per cent white wheat; size half medium and half small; skin thin; weevil, only a trace; clean and free from seed; handled well.)

Value in London, 45s. per 496 lbs.

Weight per bushel, 62¾ lbs. (Good.)

Weight of 100 separate grains of the wheat, 51.8 grains avoirdupois.

1. *System.*—Grinding under millstones.

| Quantity operated upon, 5,000 lbs. | per cent. | |
|---|---|---|
| Enter quantity treated as | 100.0 | |
| Impurities removed | .72 | |
| | 99.28 | |
| Water absorbed to render mellow | 3.60 | |
| | 102.88 | |
| Yield: flour | 78.40 | (A high yield, |
| " middlings | 1.68 | color medium.) |
| " pollard | 9.80 | |
| " bran | 9.40 | |
| | 99.28 | |
| Evaporation and loss | 3.60 | (See Notes, page 31.) |
| | 102.88 | |
| Gluten, by water test, when damp | 24.6 | |
| Ditto, ditto, when dry | 9.3 | |

2. *System.*—Crushing between the rollers.

| Quantity operated upon, 5,000 lbs. | per cent. | |
|---|---|---|
| Enter quantity treated as | 100.0 | |
| Impurities removed | .72 | |
| | 99.28 | |
| Water absorbed to render mellow | 3.60 | |
| | 102.88 | |
| Yield: flour | 74.2 | (A high yield, |
| " dark ditto | 1.2 | color good and with bloom.) |
| | 75.4 | |
| " middlings | 7.7 | |
| " pollard | 13.5 | |
| " bran | 5.3 | |
| | 101.9 | |
| Evaporation and loss | 98 | (See Notes, page 31.) |
| | 102.88 | |
| Gluten, by water test, when damp | 23.4 | |
| Ditto, ditto, when dry | 10.5 | |

*Lot 3.—Indian, average hard white.*

Quality—Average hard white. (Color light yellow, and semi-transparent, with a little hard red; size long and arched; skin thin; wheat clean, but about three per cent of dry hard mud in large pieces; weevil only a trace.)

Value in London, 44s. per 496 lbs.

Weight per bushel, 60 lbs.

Weight of 100 separate grains of the wheat, 68.3 grains avoirdupois.

1. *System.*—Grinding under millstones.

| Quantity operated upon, 5,000 lbs. | per cent. | |
|---|---|---|
| Enter quantity treated as | 100.0 | |
| Impurities removed | 3.7 | (Contained an excess of dry |
| | 96.3 | earth or mud.) |
| Water absorbed to render mellow | 8.4 | (Very high.) |
| | 104.7 | |
| Yield: flour | 80.52 | |
| " middlings | .78 | |
| " pollard | 10.0 | |
| " bran | 8.3 | |
| | 99.60 | |
| Evaporation and loss | 5.1 | (See Notes, page 31.) |
| | 104.7 | |
| Gluten, by water test, when damp | 31.4 | |
| Ditto, ditto, when dry | 11.7 | |

2. *System.*—Crushing between rollers.

| Quantity operated upon, 5,000 lbs. | per cent. | |
|---|---|---|
| Enter quantity treated as | 100.0 | |
| Impurities removed | 3.7 | |
| | 96.3 | |
| Water absorbed to render mellow | 8.4 | (Very high.) |
| | 104.7 | |
| Yield: flour | 72.1 | (A high yield, |
| " dark ditto | 1.1 | color medium, and good bloom.) |
| | 73.2 | |
| " middlings | 10.3 | |
| " pollard | 14.8 | |
| " bran | 3.1 | |
| | 100.9 | |
| Evaporation and loss | 3.8 | (See Notes, page 31.) |
| | 104.7 | |
| Gluten, by water test, when damp | 33.2 | |
| Ditto, ditto, when dry | 12.6 | |

*Lot 4.—Indian, average hard red.*

Quality.—Average hard red. (Color very dull brown, semi-transparent, with 10 per cent fine, soft, white, large, coarse grains, arched and pointed.)

Value in London, 43s. per 496 lbs.

Weight per bushel, 61¼ lbs. (Condition clean and free from dirt, but a little gram, seed, and linseed and barley; free from weevil.)

Weight of 100 separate grains of the wheat, 77.7 grains avoirdupois.

1. *System.*—Grinding under millstones.

| Quantity operated upon, 5,000 lbs. | per cent. | |
|---|---|---|
| Enter quantity treated as | 100.0 | |
| Impurities removed | 1.2 | |
| | 98.8 | |
| Water absorbed to render mellow | 7.6 | |
| | 106.4 | |
| Yield: flour | 79.88 | (An exceedingly |
| " middlings | .78 | high yield; color |
| " pollard | 13.20 | inferior.) |
| " bran | 8.50 | |
| | 102.36 | |
| Evaporation and loss | 4.04 | (See Notes, page 31.) |
| | 106.4 | |
| Gluten, by water test, when damp | 40.4 | |
| Ditto, ditto, when dry | 13.4 | |

2. *System.*—Crushing between rollers.

| Quantity operated upon, 5,000 lbs. | per cent. | |
|---|---|---|
| Enter quantity treated as | 100.0 | |
| Impurities removed | 1.2 | |
| | 98.8 | |
| Water absorbed to render mellow | 7.6 | (Very high.) |
| | 106.40 | |
| Yield: flour | 72.3 | (A high yield; |
| " dark ditto | 1.9 | color inferior.) |
| | 74.2 | |
| " middlings | 10.3 | |
| " pollard | 13.8 | |
| " bran | 3.0 | |
| | 101.3 | |
| Evaporation and loss | 5.1 | (See Notes, page 31.) |
| | 106.4 | |
| Gluten, by water test, when damp | 41.6 | |
| Ditto, ditto, when dry | 13.1 | |

*Lot 8.—Californian.*

Quality—Californian. (White and irregular grains; skin rather tough; some barley and oats; condition good.)

Value in Liverpool, 48s. per 496 lbs.

Weight per bushel, 59¼ lbs.

Weight of 100 separate grains of the wheat, 47.7 grains avoirdupois.

1. *System.*—Grinding under millstones.

| Quantity operated upon, 5,000 lbs. | Per cent. | |
|---|---|---|
| Enter quantity treated as | 100.0 | |
| Impurities removed | 1.7 | |
| Water absorbed to render mellow, none. | | |
| Yield; flour | 71.0 | (Medium yield, |
| " middlings | .72 | color and bloom |
| " pollard | 9 2 | unusually good.) |
| " bran | 15.3 | (A high yield.) |
| | 96.32 | |
| Evaporation and loss | 1.98 | (See Notes, page 31.) |
| | 98.3 | |
| Gluten, by water test, when damp | 32.2 | |
| Gluten, by water test, when dry | 10.5 | |

2. *System.*—Crushing between rollers.

| Quantity operated upon, 5,000 lbs. | Per cent. | |
|---|---|---|
| Enter quantity treated as | 100.0 | |
| Impurities removed | 1.7 | |
| | 98.3 | |
| Water absorbed to render mellow, none. | | |
| Yield; flour | 68 8 | (Medium yield, |
| " dark | 1.3 | color and bloom unusually good.) |
| | 70.1 | |
| " middlings | 14.5 | (A high yield.) |
| " pollard | 6.3 | |
| " bran | 3.9 | |
| | 94.8 | |
| Evaporation and loss | 3.5 | (See notes, page 31.) |
| | 98.3 | |
| Gluten, by water test, when damp | 29.6 | |
| Gluten, by water test, when dry | 8.7 | |

*Lot 9.—American Winter.*

Quality.—American winter. (Color red; grains clean; skin rather thick, but irregular in size; condition good.)

Value in London, 49s. 6d. per 496 lbs.

Weight per bushel, 61¾ lbs.

Weight of 100 grains of the wheat, 49.6 grains avoirdupois.

1. *System.*—Grinding under millstones.

| Quantity operated upon, 5,000 lbs. | Per cent. | |
|---|---|---|
| Enter quantity treated as | 100.0 | |
| Impurities removed | .5 | |
| | 99.5 | |
| Water absorbed to render mellow; none required. | | |
| Yield; flour | 73.8 | (A medium yield, |
| " middlings | .38 | color fine.) |
| " pollard | 7.9 | |
| " bran | 16.4 | (A high yield.) |
| | 98.48 | |
| Evaporation and loss | 1.02 | (See notes, page 31.) |
| | 99.5 | |
| Gluten, by water test, when damp | 37.0 | |
| Gluten, by water test, when dry | 11.0 | |

2. *System.*—Crushing between rollers.

| Quantity operated upon, 5,000 lbs. | Per cent. | |
|---|---|---|
| Enter quantity treated as | 100.0 | |
| Impurities removed | .5 | |
| | 99.5 | |


# BUSINESS NOTICES.

## A LONG FELT WANT SUPPLIED.

The La Crosse Smooth Chilled Iron Roller Mill—price $125.00. These mills will crush tailings or size middlings for a 100 barrel mill. For particulars apply to JOHN JAMES & CO., La Crosse, Wis.

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Don't order your cloth until you have conferred with us. It will pay you both in point of quality and price. We are prepared with specia facilities for this work. Write us before you order. Address

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## STEVENS ROLLS RE-CORRUGATED.

Millers in the west and northwest, who may have Stevens rolls that require re-dressing or re-corrugating, can have such work promptly and expeditiously performed by MR. ROBT. JAMISON, NEENAH, WIS., to whom we have furnished an outfit of specially constructed machinery for this purpose.

THE JNO. T. NOYE MFG. CO.,
BUFFALO, N. Y.

## CLUB LIST.

NORTHWESTERN MILLER with

| | | |
|---|---|---|
| American Miller | 1 year | $2.50 |
| London Miller | " | 3.00 |
| Scientific American | " | 4.50 |
| American Agriculturist | " | 3.00 |
| Harper's Magazine | " | 5.00 |
| Century (Scribner's) Magazine | " | 5.30 |
| Boston Journal of Commerce | " | 4.25 |
| Abernathy's Hints on Millbuilding | " | 4.00 |
| Emerson's Book | " | 2.50 |

Other publications, not on above list, can be furnished in connection with the NORTHWESTERN MILLER, at a corresponding reduction on the price charged for them separately.

## ALWAYS AHEAD.

The Atlas engine works have brought out a new automatic cut-off engine of remarkable simplicity and at a very low price. There is nothing equal to it in the market for any money. The sizes run from 20 to 100 horse power, and all who intend putting in new engines for mills this season should be sure to see this before buying. We hope to have a sample soon and are ready to receive orders now.

SHATTO & DENNIS,
207 Washington Ave. North,
Minneapolis.

| | |
|---|---|
| Water absorbed to render mellow, none. | |
| Yield; flour | 70 8 (A medium yield, |
| " dark | .7 color and bloom |
| | 71.5 very fine.) |
| " middlings | 10.3 |
| " pollard | 11.2 |
| " bran | 3.1 |
| | 96.1 |
| Evaporation and loss | 3.4 (See notes, this page) |
| | 99.5 |
| Gluten, by water test, when damp | 39.4 |
| Gluten, by water test, when dry | 11.7 |

*Lot 10.—American Spring.*

Quality—American spring. (Small red grains; skin rather thick; some oats, with about 2 per cent cockle and buckwheat.)

Value in London, 48s. per 496 lbs.

Weight per bushel, 61 lbs.

Weight of 100 separate grains of the wheat, 35.5 grains avoirdupois.

| | |
|---|---|
| Flavor | 7 |
| Texture | 9 (Rather dense.) |
| General characteristics | 10 (Loaf small.) |

2. *System.*—Crushing between rollers.

| | Pounds. | |
|---|---|---|
| Flour used | 280 | |
| French yeast | 1 | |
| Liquid potato ferment | 30 | |
| Salt | 3½ | |
| Water | 148 | (Very high.) |
| Yield of bread when cold | 362 | (High.) |
| Percentage of water to flour | 52.8 | (Very high.) |
| " bread to flour | 129,3 | (High.) |

Taking 10 as standard of fair average London bread:

| | | |
|---|---|---|
| Color, exterior | 12 | |
| " interior | 13 | |
| Flavor | 9 | |
| Texture | 10 | (Rather dense.) |
| General characteristics | 11 | (Loaf small.) |

*No. 3.—From Indian average hard white wheat.*

1. *System.*—Grinding under millstones.

| | Pounds. | |
|---|---|---|
| Flour used | 280 | |
| French yeast | 1 | |
| Liquid potato ferment | 30 | |
| Salt | 3½ | |
| Water used | 145.2 | (High.) |
| Yield of bread when cold | 376.6 | (Exceptionally high.) |
| Percentage of bread to flour | 134.5 | (Ditto.) |
| " water to flour | 51.8 | (High.) |

Taking 10 as a standard of fair average London bread.

| | | |
|---|---|---|
| Yield of bread when cold | 365 | (High.) |
| Percentage of bread to flour | 130.3 | (High.) |
| " water to flour | 53.4 | (Very high.) |

Taking 10 as standard of fair average London bread.

| | | |
|---|---|---|
| Color, exterior | 10 | |
| " interior | 9 | |
| Flavor | 9 | (More elastic than |
| Texture | 10 | Nos. 1 and 2.) |
| General characteristics | 9 | (Loaf small.) |

*No. 4.—From Indian average hard red Wheat.*

1. *System.*—Grinding under millstones.

| | Pounds. | |
|---|---|---|
| Flour used | 280 | |
| French yeast | 1 | |
| Liquid potato ferment | 30 | |
| Salt | 3½ | |
| Water used | 130 | |
| Yield of bread when cold | 354 | (Good average.) |
| Percentage of bread to flour | 126.4 | |
| Percentage of water to flour | 46.4 | |

Taking 10 as standard of fair average London bread.

| | | |
|---|---|---|
| Color, exterior | 8 | (Too red.) |
| Color, interior | 10 | |
| Flavor | 10 | |
| Texture | 12 | (Very good, elastic.) |
| General characteristics | 9 | (Loaf lofty.) |

NOTES.

*The Evaporation and Loss in Milling.*—The percentages under this heading, it will be noticed, vary considerably from

No. 11, Russian Saxonska, stones 0.7
rollers 0.2 to
No. 13, Egyptian—Buhi, stones 5.5
rollers 5.4

SYNOPSIS AND COMPARISON OF RESULTS OBTAINED FROM INDIAN AND OTHER WHEATS, BY TWO SYSTEMS OF MILLING, BY MCDOUGAL BROTHERS, AT THEIR WHEATSHEAF MILLS, LONDON, ENGLAND.

Figures in Roman.—System: Grinding under millstones. Figures in **heavier type.**—System: Crushing between rollers. *In Liverpool.

| No. | Wheat. | Value in London per 496 lbs. net weight on day of valuation. | Weight per bushel. | Weight of 100 separate grains of the wheat. | Quantity used. | Impurities removed. | Water absorbed to render mellow. | Yield. Flour. | Middlings. | Pollard. | Bran. | Evaporation and loss. | Gluten by water test. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | s. d. | lbs. | Grs. avdps. | lbs. | Per cent. | Per cent. | Per cent. | Per cent. | Per cent. | Per cent. | Per cent. | Per cent. |
| 1 | Indian (fine soft white) | 49 0 | 64 | 55.4 | 5,000 | 1.52 | 2.0 | 77.46 | .82 | 8.8 | 12.0 | 1.40 | 6.4 |
| | " " " " | 49 0 | 64 | 55.4 | 5,000 | 1.52 | 2.0 | 74.10 | 11.0 | 8.7 | 4.0 | 2.68 | 6.8 |
| 2 | " (superior soft red) | 45 0 | 62¾ | 51.8 | 5,000 | .72 | 3.6 | 78.40 | 1 68 | 9.8 | 9.4 | 3.6 | 9.3 |
| | " " " " | 45 0 | 62¾ | 51.8 | 5,000 | .72 | 3.6 | 75.4 | 7.7 | 13.5 | 5.3 | .98 | 10.5 |
| 3 | " (average hard white) | 44 0 | 60 | 68.3 | 5,000 | 3.7 | 8.4 | 80.52 | .78 | 10.0 | 8.3 | 5.1 | 11.7 |
| | " " " " | 44 0 | 60 | 68.3 | 5,000 | 3.7 | 8.4 | 73.2 | 10.3 | 14.3 | 3.1 | 3.8 | 12.6 |
| 4 | " (average hard red) | 43 0 | 61¼ | 77.7 | 5,000 | 1.2 | 7.6 | 79.88 | .78 | 13.20 | 8.50 | 4.04 | 13.4 |
| | " " " " | 43 0 | 61¼ | 77.7 | 5,000 | 1.2 | 7.6 | 74.2 | 10.3 | 13.8 | 3.0 | 5.1 | 13.1 |
| 5 | English | 49 0 | 60½ | 57.4 | 5,000 | 1.5 | None. | 65.2 | 1.1 | 9.7 | 17.7 | 4.8 | 10.6 |
| | " | 49 0 | 60½ | 57.4 | 5,000 | 1.5 | " | 70.3 | 7.6 | 7.2 | 9.2 | 4.2 | 11.4 |
| 6 | Australian | 50 6 | 62½ | 80.5 | 5,000 | 1.0 | " | 75.8 | 1.1 | 7.4 | 14.4 | .3 | 11.6 |
| | " | 50 6 | 62½ | 80.5 | 5,000 | 1.0 | " | 75.1 | 8.0 | 9.3 | 5.5 | 1.1 | 12.2 |
| 7 | New Zealand | 48 0 | 62¾ | 67.6 | 5,000 | .3 | " | 76.1 | .96 | 8.8 | 11.5 | 2.34 | 10.2 |
| | " | 48 0 | 62¾ | 67.6 | 5,000 | .3 | " | 76.1 | 7.8 | 6.6 | 5.6 | 3.6 | 9.0 |
| 8 | Californian | *48 0 | 59¼ | 47.7 | 5,000 | 1.7 | " | 71.1 | .72 | 9.2 | 15.3 | 1.98 | 10.5 |
| | " | *48 0 | 59¼ | 47.7 | 5,000 | 1.7 | " | 70.1 | 14.5 | 6.3 | 3.9 | 3.5 | 8.7 |
| 9 | American (winter) | 49 6 | 61¾ | 49.6 | 5,000 | .5 | " | 73 8 | .38 | 7.9 | 16.4 | 1.02 | 11.0 |
| | " " | 49 6 | 61¾ | 49.6 | 5,000 | .5 | " | 71.5 | 10.3 | 11.2 | 3.1 | 3.4 | 11.7 |
| 10 | " (spring) | 48 0 | 61 | 35.5 | 5,000 | .9 | " | 72.2 | .24 | 7.2 | 14.7 | 4.76 | 15.3 |
| | " " | 48 0 | 61 | 35.5 | 5,000 | .9 | " | 69.5 | 12.1 | 10.4 | 3.8 | 3.3 | 14.6 |
| 11 | Russian (Saxonska) | 52 0 | 60½ | 37.3 | 5,000 | .9 | " | 73.0 | 1.2 | 11.6 | 12.6 | .7 | 22.1 |
| | " " | 52 0 | 60½ | 37.3 | 5,000 | .9 | " | 71.4 | 12.5 | 11.7 | 3.3 | .2 | 23 2 |
| 12 | " (hard Tangarog) | 49 0 | 61¼ | 54.7 | 5,000 | .8 | 2.4 | 76.2 | 1.2 | 12.7 | 8.1 | 3.4 | 17.6 |
| | " " " | 49 0 | 61¼ | 54.7 | 5,000 | .8 | 2.4 | 72.0 | 9.6 | 12.1 | 5.0 | 2.9 | 15.3 |
| 13 | Egyptian (Buhi) | *47 0 | 58 | 50.1 | 5,000 | 2.7 | 3.1 | 72.9 | 1 0 | 11.0 | 10.0 | 5.5 | 4.4 |
| | " " | *47 0 | 58 | 50.1 | 5,000 | 2.7 | 3.1 | 72.6 | 10 4 | 8.5 | 3.5 | 5.4 | 7.9 |
| 14 | " (Saida) | *43 6 | 57½ | 61.4 | 5,000 | 12.1 | 2.7 | 66.9 | .76 | 11.4 | 7.5 | 1.04 | 7.5 |
| | " " | *43 6 | 57½ | 61.4 | 5,000 | 12.1 | 2.7 | 67.8 | 7.2 | 6.5 | 4.9 | 4.2 | 6.6 |

[NOTE.—We have omitted, as but of little interest to American millers, the details of experiments with other wheats than American winter and spring, Californian, and the four Indian samples. The results of the other tests, both baking and grinding, will be found embodied in the tables.]

When the manufacture of wheat into flour was completed, we proceeded to convert into bread a given quantity of each flour from the Indian wheats by both systems of milling, and from the remaining wheats by the roller system, and the results obtained are stated in the following tables, with a tabular synopsis for convenience of ready comparison:

BREAD.

*No. 1.—From Indian fine soft white wheat.*

1. *System.*—Grinding under millstones.

| | Pounds. | |
|---|---|---|
| Flour used | 280 | |
| French yeast | 1 | |
| Liquid potato ferment | 30 | |
| Salt | 3½ | |
| Water used | 141.4 | |
| Yield of bread when cold | 364 | (High.) |
| Percentage of bread to flour | 130.0 | (Ditto.) |
| " water to flour | 50.5 | (Ditto.) |

Taking 10 as standard of fair average London bread:

| | | |
|---|---|---|
| Color, exterior | 10 | |
| " interior | 11 | |
| Flavor | 7 | |
| Texture | 8 | (Rather dense.) |
| General characteristics | 11 | (Loaf small.) |

2. *System.*—Crushing between rollers.

| | Pounds. | |
|---|---|---|
| Flour used | 280 | |
| French yeast | 1 | |
| Liquid potato ferment | 30 | |
| Salt | 3½ | |
| Water used | 140.6 | (Very high.) |
| Yield of bread when cold | 367.5 | (Ditto.) |
| Percentage of bread to flour | 131.2 | (Ditto.) |
| " water to flour | 53.4 | (Ditto.) |

Taking 10 as standard of fair average London bread:

| | | |
|---|---|---|
| Color, exterior | 13 | |
| " interior | 13 | |
| Flavor | 9 | |
| Texture | 9 | (Rather dense.) |
| General acteristics | 12 | (Loaf small.) |

*No. 2.—From Indian superior soft red wheat.*

1. *System.*—Grinding under millstones.

| | Pounds. | |
|---|---|---|
| Flour used | 280 | |
| French yeast | 1 | |
| Liquid potato ferment | 30 | |
| Salt | 3½ | |
| Water | 141.6 | (High.) |
| Yield of bread when cold | 372 | (Very high.) |
| Percentage of bread to flour | 133.0 | (Ditto.) |
| " water to flour | 50.6 | (High.) |

Taking 10 as standard of fair average London bread:

| | | |
|---|---|---|
| Color, exterior | 8 | |
| " interior | 10 | |
| Liquid potato ferment | 30 | |
| Salt | 3½ | |
| Water | 141.0 | (High.) |
| Yield of bread when cold | 370.5 | (Very high.) |
| Percentage of bread to flour | 132.4 | (High.) |
| " water to flour | 50.3 | (Ditto.) |

1. *System.*—Grinding under millstones.

| | Per cent. | |
|---|---|---|
| Quantity operated upon, 5,000 lbs. | | |
| Enter quantity treated as | 100.0 | |
| Impurities removed | .9 | |
| | 99.1 | |
| Water absorbed to render mellow; none required. | | |
| Yield; flour | 72.2 | (Medium yield, |
| " middlings | .24 | color and bloom |
| " pollard | 7.2 | unusually good.) |
| " bran | 14.7 | |
| | 94.34 | |
| Evaporation and loss | 4.76 | (See notes, this page) |
| | 99.1 | |
| Gluten, by water test, when damp | 40.6 | |
| Ditto, ditto, when dry | 15.3 | (Strength above average.) |

2. *System.*—Crushing between rollers.

| | Per cent. | |
|---|---|---|
| Quantity operated upon, 5,000 lbs. | | |
| Enter quantity treated as | 100.0 | |
| Impurities removed | .9 | |
| | 99.1 | |
| Water absorbed to render mellow; none required. | | |
| Yield; flour | 68.7 | |
| " dark | .8 | |
| | 69.5 | |
| " middlings | 12.1 | (Medium yield, |
| " pollard | 10.4 | color and bloom |
| " bran | 3.8 | unusually good.) |
| | 95.8 | |
| Evaporation and loss | 3.3 | (See notes, this page) |
| | 99.1 | |
| Gluten, by water test, when damp | 39.2 | |
| Ditto, ditto, when dry | 14.6 | (Strength above average.) |

Taking 10 as standard of fair average London bread.

| | | |
|---|---|---|
| Color, exterior | 6 | |
| " interior | 7 | |
| Flavor | 7 | (More elastic than Nos. 1 and 2.) |
| Texture | 10 | |
| General characteristics | 7 | (Loaf small.) |

2. *System.*—Crushing between rollers.

| | Pounds. | |
|---|---|---|
| Flour used | 280 | |
| French yeast | 1 | |
| Liquid potato ferment | 30 | |
| Salt | 3½ | |
| Water | 149.6 | (Very high.) |
| Color, exterior | 5 | |
| Color, interior | 7 | |
| Flavor | 7 | |
| Texture | 10 | (More elastic than |
| General characteristics | 6 | Nos. 1 and 2.) |

2. *System.*—Crushing between rollers.

| | Pounds. | |
|---|---|---|
| Flour used | 280 | |
| French yeast | 1 | |
| Liquid potato ferment | 30 | |
| Salt | 3½ | |
| Water | 147.4 | (Very high.) |
| Yield of bread when cold | 365 | (High.) |
| Percentage of bread to flour | 130.3 | (High.) |
| Percentage of water to flour | 52.2 | (Very high.) |

Taking 10 as standard of fair average London bread.

| | | |
|---|---|---|
| Color, exterior | 9 | |
| Color, interior | 9 | |
| Flavor | 8 | |
| Texture | 10 | (More elastic than Nos. 1 and 2.) |
| General characteristics | 8 | (Loaf small.) |

*No. 8.—From Californian Wheat.*

*System.*—Crushing between rollers.

| | Pounds. | |
|---|---|---|
| Flour used | 280 | |
| French yeast | 1 | |
| Liquid potato ferment | 30 | |
| Salt | 3½ | |
| Water | 136.8 | |
| Yield of bread when cold | 364 | |
| Percentage of bread to flour | 130 | |
| Percentage of water to flour | 48.9 | |

Taking 10 as standard of fair average London bread.

| | | |
|---|---|---|
| Color, exterior | 12 | (Very good.) |
| Color, interior | 12 | (Ditto.) |
| Flavor | 12 | (Ditto.) |
| Texture | 9 | (Rather weak.) |
| General characteristics | 10 | (Loaf medium in size.) |

*No. 9.—From American Winter Wheat.*

*System.*—Crushing between rollers.

| | Pounds. | |
|---|---|---|
| Flour used | 280 | |
| French yeast | 1 | |
| Liquid potato ferment | 30 | |
| Salt | 3½ | |
| Water | 130 | |
| Yield of bread when cold | 346 | |
| Percentage of bread to flour | 123.5 | |
| Percentage of water to flour | 46.4 | |

Taking 10 as standard of fair average London bread.

| | | |
|---|---|---|
| Color, exterior | 13 | (Very good.) |
| Color, interior | 12 | (Ditto.) |
| Flavor | 12 | (Ditto.) |
| Texture | 10 | (Good.) |
| General characteristics | 11 | (Loaf medium in size.) |

*No. 10.—From American Spring Wheat.*

*System.*—Crushing between rollers.

| | Pounds. |
|---|---|
| Flour used | 280 |

These variations must not be attributed chiefly to the differences in qualities of the wheat, as they arise mainly from the waste and loss that are inseparable from working small quantities on a practical scale; about ten quarters of each wheat were operated upon in these experimental workings, whereas in ordinary milling a "grist" will run from 1,000 to several thousand quarters. This will be readily understood, when it is borne in mind that, after the working of each separate wheat by either process, the stones or rollers, hoppers, elevators, dressing silks, etc., have to be swept out, and it is impossible to avoid some waste from this cause. In milling operations it is found there is a larger loss, etc., "unaccounted for" on inferior wheats than upon good wheats, but it does not exceed a total of 1 to 2 per cent. For practical purposes, the items evaporation and loss should be taken as obtained by competent millers, viz.:

From stones 1@2 per cent.
From rollers 1@3 per cent.

according to the qualities of the wheats.

*Water used in Bread Making.*—The differences in the quantities of water required by each of the flours from Indian wheats per 280 lbs. flour in making them into bread (ranging from 149.6 to 141 lbs. water) is partly accounted for by the fact of somewhat similar variations in the water absorbed in rendering the wheats mellow for milling.

Regarding foreign crops, A. Kufeke's Glasgow circular of June 21 says: "The weather is good for crops in Scotland, but the ground all over looks very patchy. As far as can be ascertained, Hungary, France, and Germany promise but light crops; reports from some parts of Russia are more hopeful, or even very good. Taking a general view of our future position, there seems to be reason for believing in a continuance of moderate values for wheat and flour. Indian supplies begin to play a more important part, millers using as much as one-third in their mixtures."

Great attention should be shown as to the relative height and breadth of a mill building, so that in elevating wheat or flour, it can be spouted into every place it may be needed to be taken without the intervention of conveyors which are often a needless expense.

## ST. LOUIS SIFTINGS.

[SPECIAL CORRESPONDENCE.]

We notice a better tone to the milling business here this week, although matters in general are still very dull, which is characteristic of the "tailing off" of the old crop. The flour market opened dull and weaker and prices dropped a trifle. The two holidays of the week were the cause of an accumulation of orders in buyers' hands—hence the last two days have been enlivened by brisk trading. Receipts of flour from the surrounding country continue light, altnough they show an increase of about 1,500 barrels over last week. Sales averaged only about 2,100 barrels per day while the output of the mills was about 3,500 barrels. The several mills in process of enlargement are approaching completion, and will soon join the line and swell the production. It is also expected that the New Atlantic will soon start up, as well as the United States and Union steam mills, which were compelled to shut down by the high water. Wheat receipts have been very small and stocks have decreased some 35,000 bushels. The demand was principally from millers and shippers, and was quite active, interest being generally centered on No. 2. red. Quotations are lower, a decline having occurred of about ¾ of a cent from prices of a week ago. Market closed to-day at $1.04 for No. 2 red and 95 cts. for No. 3. red.

***

Jacob Koenigsmark, of Columbia, Ill., took a run up to town Friday.

The Southern mill is putting in a new engine of 275 horse power.

Dick Bros., of Quincy, will add a double set of Stevens rolls to their equipment.

Frank E. Hadley, with the Atlantic Milling Co., has returned from his European trip.

The Todds & Stanley Mill Furnishing Co. have just issued their annual catalogue for 1883.

J. W. Eisenmayer, the well-known miller of Trenton, spent a few days in the city this week.

Giessing & Son have ordered 5 pairs Stevens rolls through Chas. Huber, the St. Louis agent.

M. D. Webb, engineer in the Union elevator, recently fell from a step ladder and broke his right leg.

Stevens rolls will be used in J. R. Allen's mill at Mt. Vernon, Ill., being changed to roller system.

The new half of the Victoria mills was started up last Thursday, and is now moving along in elegant style.

Martin R. Windhorst, engaged in the flour business here, was recently married in the city to Miss Mattie E. Burwick.

Enos T. Doran, of Elgin, Ill., and J. C. Hackett, of Scott & Hackett, Jacksonville, Ill., were on 'change Thursday.

J. G. Guthrey, of Miami, Mo., is having his mill changed to the roller system and will use Stevens rolls and Huber's system.

Adam Ewing, of Trenton, Ill., was on 'change to-day. Mr. Ewing is the illustrious 3d base man of our famous miller base ball nine.

The Union steam mill was by far the heaviest loser among our mills by the recent floods. At one time there were four feet of water in its boiler house.

Messrs. J. B. Wheeler and R. S. Holt, of New York, were introduced in the flour corner by E. Goddard, of the United States mills, on Tuesday last.

Wm. E. Bain, one of our grain inspectors, and a brother of Geo. Bain, met with a painful accident last week, whereby one of his arms was broken at the wrist.

The first car of Kansas new wheat was received here on last Monday. It was shipped by Todd & Hewatson, of Wichita, Kas., to Doling & Langenberg, of this city.

The United States mill being compelled to shut down by the high water, a miniature dyke was built around the mill to keep the flood out, and workmen are now removing it. The mill will resume operations next week.

A recent auspicious social affair was the marriage of Wm. Rayer of the Shultz Belting Co., to Miss Clara L. Beach. Mr. J. J. Shultz and Mr. and Mrs. Rayer left the evening of the wedding on a trip to points of interest in Colorado.

The firm of D. L. Wing & Co. has been changed to the Wing Milling Co., with capital stock of $400,000. D. L. Wing is president and secretary, and W. R. Trary is treasurer under the new order of things. Their new mill, at Litchfield, Ill., of 2,000 bbls. capacity, will be completed in a few days.

The first barrel of flour made from new wheat was received here to-day, and was sold on 'change for the benefit of the flood sufferers, realizing over forty dollars. The flour was ground by the Gardner mill, of Columbia, Ill., Thos. Koenigsmark, proprietor. Jno. T. Imbs & Co. are their agents in this city.

Messrs. Kalbfleisch & Co., proprietors of the St. George mills, have formed a stock company to be known as the Kalbfleisch Milling Co., of St. Louis. Capital stock $85,000, all paid in. The incorporators are Henry Kalbfleisch, Henry Kratz, Henry Kalbfleisch, Jr., and Aug. F. Kalbfleisch.

A gang of workmen have been busy all the week cleaning out the basement and boiler house of the Union steam mill, which the receding water of the river has left full of soft mud. When the job is completed, and all the belts and conveyers replaced, which will take until about Thursday, operations will be resumed.

The Huber & Wack Milling and Live Stock Co. have opened an office in the Exchange building of this city, and will hereafter handle the product of the Seneca roller mill, of which they are the proprietors. The officers of the company are Chas. Huber, president; Paul Wack, vice-president and treasurer: and Jas. Huber, superintendent. The mill is now grinding on new wheat and making excellent flour.

Hon. George Bain returned home from his European trip last Sunday night, well pleased with his tour and enjoying excellent health. His appearance on 'change was greeted with marked manifestations of pleasure. He expresses himself highly pleased with the work accomplished by the national convention at Chicago, and especially with the election of Mr. Christian to the presidency.

The long looked-for game of base ball between our millers' ("Double Extras") and our professional nine, for the benefit of the flood sufferers took place to-day and was throughout a most remarkable one. Long before "time" was called a goodly number of spectators were present, over 10,000 tickets being disposed of. It took eleven innings to decide the game; the score at the end standing 14 to 13 in favor of the professionals. When it is considered that the flour nine was composed of comparatively amateurs and were without practice, the score may be considered remarkable. The millers all showed good points; J. C. Kirk, E. L. Buschman, Short-stop Chamberlain and Adam Ensing making especially brilliant plays. The other nine was, with one exception, composed of professional players. The "Double Extras" loomed up in new suits of white, with blue stockings and caps, and made a very handsome appearance. The match was witnessed by the majority of our large millers who took great delight in encouraging the "boys."

### Cooper's Chips.

About sixty men are working at Bumb's shops.

The North Star shops are running full time, working 90 men.

Benj. Footrock, south Minneapolis, is working nine men at present.

Van S. Bennet, of Rockton, was among the hoop and pole men in town this week.

Two members of the Hennepin Co. sold out their stock at the last meeting. C. Larson to Wm. Marston, and A. Brandt to Geo. J. Elliott.

Our Milwaukee correspondent says: "Coopers here are very short of work, as what little flour is being manufactured is for export, and is being packed in bags."

The shops of the Northwestern Co. are at present employing 35 men, and turning out from 2,000 to 2,200 barrels per week. Last week they were shut down, it being the first time in a long while.

The Phœnix Barrel Co. started in for a heavy week, but as one of the mills it furnishes is expected to shut down, it will probably stint its 29 men. John Flyn and L. Marshall were members that sold their stock at the last meeting.

The Hennepin Co. shut down Tuesday night for the balance of the week. This company has secured the contract to furnish the Palisade mill with barrels, which will be no small item, as this mill has been enlarged to a capacity of 1,500 barrels of flour per day.

The Co-operative Co.'s shops are running full this week, working about 83 men. Three members have recently sold their stock to the company, viz: Chas. Finning, A. Fulston, and Ed Grant. Mr. Finning has gone to Ketchum, Idaho; Mr. Fulston to Springfield, Ia., where he is running a tub factory; and Mr. Grant is keeping a confectionery store on Washington ave. north.

The price of ten-hoop barrels has been reduced from 49 to 47 cents, this being the uniform price by all the co-operative shops. This reduction is claimed to have been started by the east side shops cutting to 45 cents in orders to run in some barrels on the regular customers of other shops. The reduction to 47 cents, however, was pretty generally a voluntary act on the part of the different shops, being unsolicited by the millers. The wisdom of it was suggested by the fact that cooper supplies are somewhat lower. It is charged, and we have reason to believe it, that one or two shops, of perhaps questionable business propensities, are yet selling barrels at 45 cents.

D. W. Ahern is at present engaged in erecting buildings for a large cooper establishment in south Minneapolis, near the short line junction of the Milwaukee road. Mr. Ahern will operate a regular cooper shop, and at the same time will keep on hand a line of coopers supplies, in the latter representing the Chicago Stave Co. The buildings are three in number, one containing the cooper shop and the other two being for storing supplies. All are frame structures, the cooper shop being 26x292 feet, two stories; and the storage buildings 28x120 feet, two stories, and 20x150 feet, one and a half story, respectively. The cooper shop will have a capacity of 1,500 to 2,000 barrels per day, and the storage buildings a capacity for holding 100 car loads. Mr. Ahern hope to be ready to commence business the first part of August.

## MFG. AND TRADE.

J. U. Wilder has purchased a 6-break Odell machine of the Stilwell & Bierce Mfg. Co.

G. C. Miller, Eldersville, Pa., has purchased Odell rolls from the Stilwell & Bierce Mfg. Co.

J. M. Corl, Navarre, O., is putting in more Stevens rolls to be furnished by the Noye Mfg. Co.

Robt. Flicklinger, Atchison, Kas., has ordered a run of buhrs from the Great Western Mfg. Co.

The Stilwell & Bierce Mfg. Co. furnish Schnur, of Mt. Vernon, Ind., with five pairs of Odell rolls.

The Stilwell & Bierce Mfg. Co. have an order for Odell rolls for the mill of Jacob Venier, Archville, O.

C. O. McCrum, of Garnett, Kas., is overhauling his mill, ordering machinery of the Great Western Mfg. Co.

Adams & Losh, of Alma, Neb., are building a mill and have placed their order with the Great Western Mfg. Co.

The Gem Milling Co., of Rushville, Ind., recently ordered 10 pairs of Allis-Gray rolls through Richards & Butler.

E. P. Allis & Co., Milwaukee, recently furnished F. Thoman, of Lansing, Mich., 12 pairs of Allis-Gray rolls.

H. D. Rush, of Leavenworth, is putting in additional bran and germ rolls ordered of the Great Western Mfg. Co.

L. G. Barker, of Shippinsville, Pa., has ordered of the Noye Mfg. Co., a single Stevens roller mill for germ crushing.

The Haxtun Steam Heater Co. have contracted with E. P. Allis & Co. for a 22x48 Reynolds-Corliss engine to go to Kewaunee, Ill.

Page & Norton, Topeka, Kas., have ordered 6 Prinz patent dust collectors of the Milwaukee Dust Collector Co.

L. C. Prunty, of Laclede, Kas., places an order with the Great Western Mfg. Co. for additional machinery for his mill.

The Case Mfg. Co., have the order of J. C. Mansfield & Co., Athens, Tenn., for a pair of bran rolls with patent automatic feed.

W. F. Morse, La Fayette, Ind., has instructed the Noye Mfg. Co. to ship him a single Stevens roller mill for germ work.

The mill of C. H. Brown & Sons, at Dakota City, Iowa, improved by G. H. Hildebrand, has been started up and runs finely.

Winslow & Conley, Lake Mills, Ia., have ordered of the Noye Mfg. Co. a Round's sectional roller mill with Stevens corrugations.

J. D. Bowersock is building a 500 barrel mill at Lawrence, Kas., ordering 15 pairs of Odell rolls of the Stilwell & Bierce Mfg. Co.

An Odell eight-break mill, and other machinery, have been ordered from the Stilwell & Bierce Mfg. Co. by the Miller Co., Canton, O.

W. L. Bradford, Bryant, Kas., has placed his order with the Great Western Mfg. Co. for a Leffel water wheel, a middlings mill, etc.

E. W. Pride of Neenah, Wis., has bagged an order from Kline Bros., Kaukauna, Wis., for ten Stevens roller mills, furnished by the John T. Noye Mfg. Co.

Hewson, Craft & Co., Cambridge, Kas., have given their order for a two-reel chest and other machinery to the Great Western Mfg. Co., of Leavenworth.

J. W. Kaufman & Co., of St. Louis, will use 3 large sized Prinz dust collectors for roller exhaust, and have ordered the same from the Milwaukee Dust Collector Mfg. Co.

Harris Bros., Mt. Pleasant, Mich., have placed an order with the Noye Mfg. Co. for a Rounds sectional roller mill with Stevens corrugations; and two 9x18 sets of rolls.

C. H. Payne & Co., of Winnebago City, Minn., recently ordered a four-break reduction machine and other machinery of E. P. Allis & Co. for improvements in their mill.

The Stilwell & Bierce Mfg. Co., Dayton, O., have a contract with S. B. Greely, Foster's Crossing, O., for overhauling his mill on the Odell system, using 10 pairs of rolls.

G. W. Pearce, Valparaiso, Ind., has ordered a Rounds sectional roller mill with Stevens corrugations, and a double mill for bran and germ from the Noye Mfg. Co., of Buffalo.

Amos Phelps has ordered all the machinery of and is having the plans drawn by the Stilwell & Bierce Mfg. Co., on the Odell system, for a 100 barrel roller mill at Delavan, Wis.

Noel & Kuehn, Hanover, Pa., have ordered a Rounds sectional roller mill with Stevens corrugations, cylinder, scalper, elevators and a single germ mill of the Noye Mfg. Co., of Buffalo.

J. W. Langdon, Evansville, Ind., recently filed an order for 12 pairs of Odell rolls, with the Stilwell & Bierce Mfg. Co., Dayton, O., and the Link Belt Co., Chicago, filed another for 6 pairs.

The Stilwell & Bierce Mfg. Co. are furnishing the machinery and the programme for the mill of Geo. Hesler at Salt Lake City, Utah. A four-break concentrated Odell roller mill and Odell rolls will be among the machinery.

J. F. Steteler, of Kittanning, Pa., has lodged an order with the John T. Noye Mfg. Co., for a Round's sectional roller mill with Stevens corrugations, cylinder, scalper, elevators, and a double mill for germ and low grade.

The Stilwell & Bierce Mfg. Co., Dayton, O., get up the plans and furnish the machinery for a mill being built at De Graff, O., by S. Y. Billingsley and A. E. Burkholdt. Twelve pairs of Odell rolls will be used, and the capacity of the mill will be 100 barrels.

Louis Emery, Jr., of Three Rivers, Mich., has determined to increase the capacity of his mill to 500 barrels, and has deposited an order with the Noye Mfg. Co., of Buffalo, for sixteen pairs of Stevens rolls and the necessary machinery to accomplish the purpose. It is intended to use the centrifugal system exclusively, and J. S. Karns will boss the job.

The Illinois railroad and warehouse commission has appointed Geo. T. Forrest as state weighmaster at Chicago, and John Wade first assistant.

# TWO PERFECT MILLING MACHINES

## PEERLESS DUST COLLECTOR. | MORGAN SCOURER AND POLISHER.

**READ THE TESTIMONIALS.**

*SEND FOR PRICES.*

MINNEAPOLIS, Minn., Oct. 30, 1882.

*Messrs. Kirk & Fender, Manufacturers of Morgan's Wheat Cleaners and Scourers, Minneapolis, Minn.*

GENTLEMEN: * * * Would not be without them for anything. I can see that my bolting capacity has increased largely; the same with my purifiers. The only way I can account for this is that my wheat is well cleaned. I do not have any oats or fine fuzz to contend with, consequently my bolts and purifiers work free and open.

W. H. HELFRICH, Head Miller "Anchor" Mill.

MILWAUKEE, Dec. 5, 1882.

*Messrs. Kirk & Fender, Minneapolis, Minn.*

GENTS: * * * We have been running both the Morgan Scourer and Polisher for the past 14 years, and up to the present we consider them the best in the market. Respectfully yours,

C. MANEGOLD & SON.

WILMINGTON, Del., March 1, 1883.

*Messrs. Kirk & Fender, Minneapolis, Minn.*

GENTLEMEN: We have had the Peerless Dust Catcher about six weeks; it is giving the best of satisfaction. We are working it on a purifier which takes its middlings from the head end of the coarse grader. The dust from this grade of middlings is the softest, stickiest material in the mill, being worn off the coarse middlings while traveling in a conveyor to the grader. It has given us no trouble whatever, more than to oil it once a day, and I say, without fear of contradiction from any one who will examine or give the machine a trial, that it is the best machine ever offered to the millers of America for the purpose of collecting the dust drawn out of a purifier.

Yours truly, O. H. TITUS,
Head Miller of the Wm. Lea & Son Co.'s Mills, Wilmington and Newcastle, Del.

# KIRK & FENDER.

*SOLE MANUFACTURERS, MINNEAPOLIS, MINN.*

## A NEW DEPARTURE!

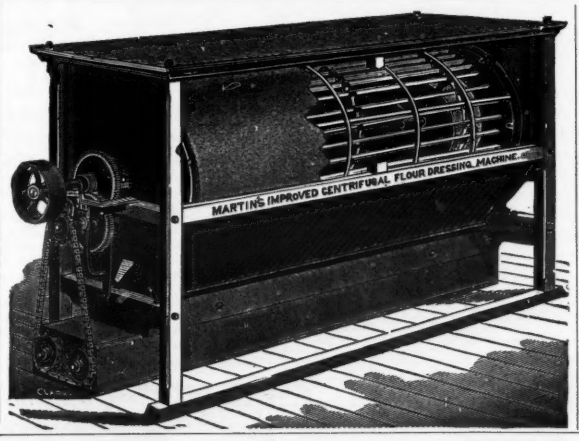
We are the Sole and Exclusive Licensees for this Country under the **Moritz Martin Patents** on

# CENTRIFUGAL FLOUR DRESSING REELS

***THE CENTRIFUGAL*** *has more than FOUR TIMES the capacity of the ordinary reel, and will make clear flour and a clean finish on stock that cannot be treated in the common reel without loss, no matter how much silk it is passed over.*

***IT IS SPECIALLY ADAPTED*** *to handling soft, re-ground material, full of light impurities, whether from rolls or stone.*

***IT IS VASTLY SUPERIOR*** *to the common reel for dusting middlings.*




***IT IS INDISPENSABLE*** *to a CLOSE FINISH in any system of gradual reduction milling, and will improve the quality of the low grade flour at the same time it makes the offal cleaner.*

***IT MAKES A CLEAN SEPARATION*** *on caked and flaky meal from smooth rolls, which no other style of reel can do.*

***THEY CAN BE USED TO ADVANTAGE*** *as a complete system of bolting, to the exclusion of the ordinary reel.*

And we are now prepared to fill orders for machines with latest improvements, which include

**OUR NEW** DOUBLE CONVEYORS, CLOTH FIXING AND STRETCHING DEVICE, AND SIMPLIFIED MANNER OF DRIVING.

## OVER ONE HUNDRED SOLD IN SIX WEEKS!

REFERENCE TO LEADING MILLERS IN THE UNITED STATES.

Write for Descriptive Circulars and Price List to

**GEO. T. SMITH MIDDLINGS PURIFIER CO., JACKSON, MICH.**

## From Our Foreign Exchanges.

[Translated for the NORTHWESTERN MILLER.]

One of the most original arrangements of improved feed roller mills is that of Regnier, which has the purpose to produce a perfect breaking and grinding of the mill goods, by passing the same in a long continued evenly distributed stream. This mill has a movable regulating bar adjustable by means of a hand-wheel, under which in a case is a corrugated roll. Beneath this lies a second, having double the diameter of the first and finer corrugations. The grain falls into the aperture between the rolls and passes first into the deeper grooves of the upper feed roll, then from that on the roll lying beneath. The broken material then goes to the true grinding rolls in a perfectly regulated stream. A disadvantage of this arrangement lies in the fact that the mill material, through the long distance which it passes, is apt to become very warm.—*Allge. Muehlen und Masch. Zeitung.*

***

A short time since, a real milling experiment was made in France. Instead of the stones, metallic discs were used, the grinding surfaces of which were furrowed radially. The upper disc is bound fast to the mill iron and runs parallel to the bottom disc, after the manner of stones. Discs with different deepness of furrows are used for the various operations. The result of the breaks and ending was about 1½ per cent of dark flour; from the bolting and break following, 8 to 12 per cent of middlings resulted; the second and third breaks gave 2 to 3 per cent of fine flour. After milling, the middlings gave 64 to 66 per cent of white, 4 per cent medium and 2 to 3 per cent of low grade flour. While we have no doubt of the statements given, it is probable that this process has but a small future before it, on the ground that the different breaking and grinding discs will soon wear down and will thus need constant sharpening. For this reason milling with well prepared and kept stones may be as much recommended as formerly.—*Allge. Muehlen und Masch. Zeit.*

***

Milling Anecdote: "Your whole skill avails nothing," said a miller to an expert, who recommended different new machines to him, "as long as you are unable to tell how a man can make flour without grain, your wisdom is wholly without avail." "Nothing is easier than that," replied the machine man; "just let the stones run empty until they grind themselves to dust. Then you have flour and have used no grain." "That would do, to be sure," said the miller, "but I only wish you must eat the bread made from such flour. Then you would get some idea how heavily many of your inventions lie in the stomach."—*Oester.-Ungar. Mueller.*

***

In relation to the comparative properties of spring and winter wheat flours, *Der Oester.-Ungar. Mueller* says: "Many millers hold the opinion that the yield from spring wheat is greater than from winter, and that a corresponding difference is manifest in baking. Particularly in America this view is widely held, since the best equipped mills grind mostly spring wheat, and the good qualities of the flour are commonly ascribed to the value of the raw material. A difference of 40 to 60 pounds of bread per barrel of flour, is often shown in favor of the spring wheat. Lately experiments with a view to obtaining the truth of the matter, have been conducted, using three brands of winter wheat flour and the same number of spring. The results after baking were as follows: Winter wheat No. 1, 287½ pounds; No. 2, 277; No. 3, 275. Spring wheat, No. 1, 302⅔ pounds; No. 2, 299 1-5; No. 3, 299. The greatest difference, therefore, was only 27 pounds in favor of the spring wheat flour.

***

In agricultural regions of Germany a petition to the reichstag has been circulated asking an increase of the tax on grain of Russian and transatlantic importation from one mark per double centner to three. The reason given for this request is that the farmers of Germany cannot compete with the low prices at which the foreign grain is sold, and that in consequence the farming industry and others connected with it are much straitened and embarassed.—*Walzen Muehler.*

A German physician has made investigations showing that the average life of a baker is 51 years and 6 months. Of a thousand bakers only 8 reached the age of ninety, 69 lived to be eighty, 220 seventy, and 250 sixty-eight. All in all this occupation compares favorably with others.

***

It is a long recognized fact that grain, stored in prismatic receptacles, does not have a weight upon the floor of the same, corresponding to the weight of the column of grain above it. This is owing to the fact that the grain forms a fixed curve or arch shaped layer so that a part of the weight of the mass bears against the side walls, and only the weight of that portion lying under the arch is sustained by the floor itself.

Isaac Roberts gave before the British Association in Southampton an account of a series of experiments which he made with different grains in receptacles of various shapes, the floor being connected with an arrangement of scales. He found that up to a certain depth, the pressure increased in proportion to the quantity of grain, but beyond this sometimes quickly reached limit, the pressure remained constant, however much the height of the column was increased. The following figures are a summary of the results of Roberts' experiments:

| Receptacle. | | | Height of Maximum Pressure. | Average Pressure on Floor. | Total Height of Grain. | Total Weight of Grain. |
|---|---|---|---|---|---|---|
| Form. | Diam. | Height. | | | | |
| | Centi-meter. | Centi-meter. | Centi-meter | Kilo-gram. | Centi-meter. | Kilo-gram. |
| Six sided.. | 17.8 | 152.4 | 31.8 | 3.18 | 142.2 | 31.48 |
| Square .... | 17.8 | 91.5 | 28.0 | 3.86 | 83.8 | 21.23 |
| Six sided.. | 30.5 | 152.5 | 61.0 | 21.17 | 140.4 | 92.00 |
| " .. | 52.7 | 243.6 | 91.5 | 101.60 | 237.5 | 419.95 |

## Will Posts Set "Top End Down" Outlast Those Set Top End Up?

It is firmly believed by many persons that posts set in the ground in a position reverse of which they stood while growing in the tree, will last much longer than when set "top end up," In the spring of 1879 I selected seasoned sticks, three feet long. These were split in two, and then cut in two crosswise, making four pieces of each. One set was placed in well drained sand, the other in clay soil. In every case two pieces were placed side by side, with earth between, one as it stood in the tree, the other reversed. I tried thirteen kinds of timber. Some of these were young wood with the bark on. All contained some heart wood. Those set in sand were examined in autumn of 1881. In cases of the beach, sugar maple, ironwood, black ash, black cherry, the piece reversed or set "top end down," was somewhat most decayed. In cases of red maple, American elm, butternut, and red elm, the piece set "bottom end down" was a trifle the most decayed. In case of basswood, white ash, white oak, and blue ash, there was no perceptible difference. In autumn of 1882, the posts set in clay soil were examined. In case of the red maple, American elm, basswood, butternut, red elm, the piece set "top end down" was most decayed. In case of beech, white ash, black ash, black cherry, the piece set "bottom end down" was most decayed. In case of ironwood, white oak, blue ash, there was no perceptible difference.

I infer that where one piece decayed more than the other it was caused by some trifling difference in the sticks. The freshly sawed ends in each case were placed uppermost, and came an inch or two above the ground.

In some cases one-half of a stick (one piece certainly the reverse of the other) lasted considerably better than its other half. As will be seen, it was sometimes the "top end down" which lasted better, sometimes the "bottom end down" and in some cases there was no difference in durability.—*W. J. Beal.*

Among the milling patents issued recently by the patent office were the following: Thos. Reid, Walkerville, Ontario, Can., feeder for mill rolls; Wm. T. Bell, Rochelle, N. Y., measure for grain spouts; H. J. Gilbert, Dayton, O., (assignor to Stout, Mills & Temple) roller mill; John Livingston, Dayton, O., (assignor to Stout, Mills & Temple) roller mill; Wm. M. Jewell, Denver, Colo., feed mechanism for roller mills, and Jno. E. Fellers, Burlington, Ind., grain tally.


A. B. TAYLOR,
Wholesale Grain Dealer.
Milling orders for round or car lots of hard or soft Spring Wheat promptly filled. Careful attention given to consignments Security Bank Building, MINNEAPOLIS, MINN.

J. J. BLACKMAN & CO.,
Commission Merchants.
FLOUR EXCLUSIVELY.
37 Water Street, New York.
J. J. BLACKMAN, J. S. BLACKMAN.

M. BERNATZ,
Flour, Grain and Feed
COMMISSION MERCHANT.
Strong Minnesota Bakers' flour a specialty. Liberal advances made on consignments. Correspondence solicited. Reference—R. Patrick & Co., Bankers, Pittsburgh, Pa.
339 Liberty Street, PITTSBURGH, PA.

EXPORT FLOUR TRADE!
Chas. J. HELLIWELL & CO.
51, Chamber of Commerce Building,
MILWAUKEE, - - WISCONSIN,
(ESTABLISHED 1860.)
Mr. C. J. Helliwell, after a visit of several months to this country, has now returned to Liverpool, England, still better fitted than formerly to serve American Millers. The firm at Milwaukee will be pleased to receive samples and offers from millers, and to furnish any information in their power.

J. D. EDGE,
Millwright and Draughtsman,
Dealer in Millfurnishings, Etc.
Estimates cheerfully given on building new mills and repairing old ones. Minneapolis, Minn.

CHICAGO SCALE CO.
2 TON WAGON SCALE, $40. 2 TON, $50.
4 Ton $60, Beam Box Included.
240 lb. FARMER'S SCALE, $5.
The "Little Detective," ¼ oz. to 25 lb. $3.
300 OTHER SIZES. Reduced PRICE LIST FREE.
FORGES, TOOLS, &c.
BEST FORGE MADE FOR LIGHT WORK, $10.
40 lb. Anvil and Kit of Tools, $10.
Farmers save time and money doing odd jobs.
Blowers, Anvils, Vices & Other Articles AT LOWEST PRICES, WHOLESALE & RETAIL.

A BARGAIN!
The following machinery will be sold at a bargain: One 25-inch right hand turbine water wheel; 1 30-inch right hand turbine water wheel; 1 30-inch left hand turbine water wheel; 1 36-inch right hand turbine water wheel; 1 40-inch left hand turbine water wheel; 3 No. 5 Smith purifiers. This machinery is in excellent order and will be sold at a sacrifice. Address,
PRAY MFG. CO.,
Minneapolis, Minn.

C. A. SELEY.
CONSULTING ENGINEER.
ROOM 16, DRAKE BLOCK, ST. PAUL, MINNESOTA.
I am prepared to contract for engineering work as follows: Furnish and set up power plants, complete or in part, set up machinery, pumps, water works, etc., and take charge of repairs.
Stationary, locomotive and marine engines indicated and adjusted for highest economy and work. Will conduct fuel and engine tests; design engines and special machinery. General draughting and engineering.
If you are burning too much fuel; if you wish to increase your power without great expense; if you wish power measured for renting or experiments; in short, any item of engineering work will be promptly attended to. Work done under guarantee when desired. Correspondence solicited.

CHEAPEST STEAM PUMP IN THE WORLD!
14 EIGHT SIZES
THE UNIQUE
Boiler Feeder
STRICTLY FIRST CLASS IN EVERY RESPECT.
SEND FOR NEW & REDUCED PRICE LIST FREE ON APPLICATION
MANUFACTURED BY THE MILLER COMPANY, CANTON, OHIO.
Satisfaction Guaranteed or No Pay!

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Oak Leather Belting
OF SUPERIOR QUALITY,
HARDWARE,
Mill Supplies
MILLER BROTHERS,
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FOSS & PATTERSON,
Civil and Hydraulic Engineers
Plans for dams and improvement of water power.
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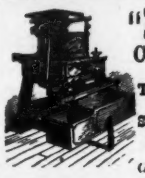
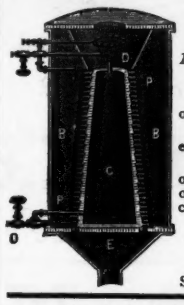

"MOORE COUNTY GRIT"
Corn-Mills and Millstones,
ALL SIZES.
THE BEST IN THE WORLD
FOR TABLE MEAL!
Samples of Meal Sent on Application.
NORTH CAROLINA MILLSTONE CO.
Chambersburg, Pa.
(Please Mention this Paper.)

WELCH'S WHEAT HEATER!
WITH STEAMING ATTACHMENT.


FIRST PREMIUM
—AT—
Millers' International Exhibition
Its superiority over a others fully established.
Heats every grain of wheat evenly and thoroughly.
We guarantee satisfaction or no sale, and invite a trial of 30 days to prove our claims.
A. B. BOWMAN,
800 North 2nd St.
ST. LOUIS, MO., U.S.A.

SAVE BOILER AND FUEL!
LYE & ZIMERLE'S
IMPROVED
Anti Incrustation Compound!
For Steam Boilers is warranted to do all we claim for it—if used as per directions—viz: Stop formation of scales and gradually bring out the old; prevent foaming and gritty matter being carried into the cylinder to cause its cutting. It is second to none.
ALL STEAM USERS NEED IT.
Price reduced to 50 cents per gallon in barrels, half barrels and quarter barrels. Correspondence solicited and references furnished. Please give diameter and length of boiler, well or river water and kind of mineral as nearly as possible. Address,
LYE & ZIMERLE, Delphos, Ohio.

ENGRAVING ON WOOD
VIEWS OF MILLS, MACHINERY, ETC.
IN THE BEST STYLE
AT
REASONABLE PRICES
THE NORTHWESTERN MILLER
MINNEAPOLIS, MINN.

BURNHAM'S
Standard Turbine
Water Wheel.
Over 2,000 sold the past eight years. New illustrated and descriptive pamphlet sent free
BURNHAM BROTHERS,
YORK, PA.

# PRAY MFG. COMPANY

MINNEAPOLIS, MINNESOTA.

## Gradual Reduction Roller Mills

**COMPLETE,**

***CORRUGATED AND SMOOTH ROLLS,***

## CENTRIFUGAL REELS,

**Caldwell Coveyor Kept in Stock.**

**ALL KINDS OF**

## MACHINES FOR DRESSING WHEAT & FLOUR.

## STEAM AND WATER PUMPS,

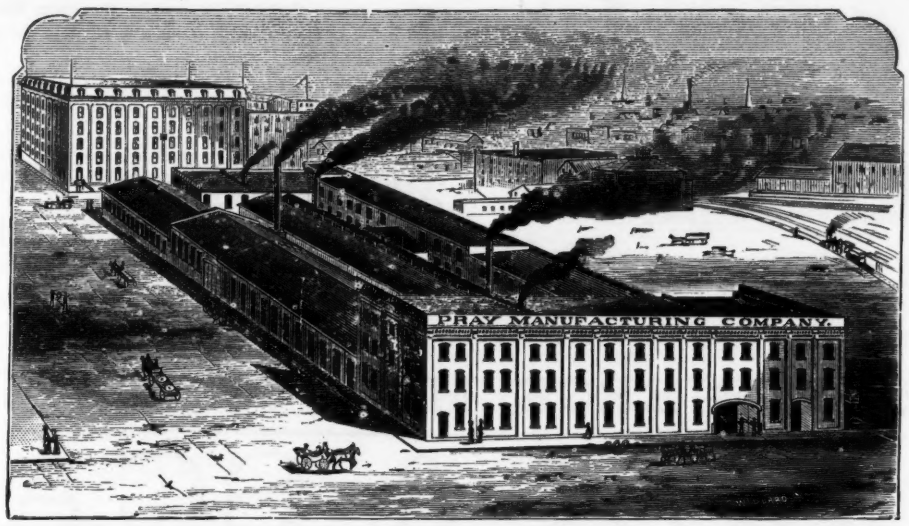
For City Supply and Fire Protection.

## ARCHITECTURAL CASTINGS,

**SHAFTING, HANGERS, BOXES,**

## Bolts, Pulleys and Gears.

Hoffeld's Celebrated Leather Belt. Solid Woven Cotton Belt.




Jack Screws. Wagon Lifters. Rolls Re-Corrugated. Rolls Re-Dressed.

# MACHINE SHOP AND FOUNDRY.

## The Old Reliable Dufour & Company's Bolting Cloth,

**The Only Genuine Article in the Market.**

**PLANS, SPECIFICATIONS AND PRICES, FOR FLOUR AND SAW MILLS, THAT CHALLENGE COMPETITION, FURNISHED ON APPLICATION.**

## Our Plans are Invariably Adopted when Placed in Competition with Others.

## THE GEO. T. SMITH MIDDLINGS PURIFIER.

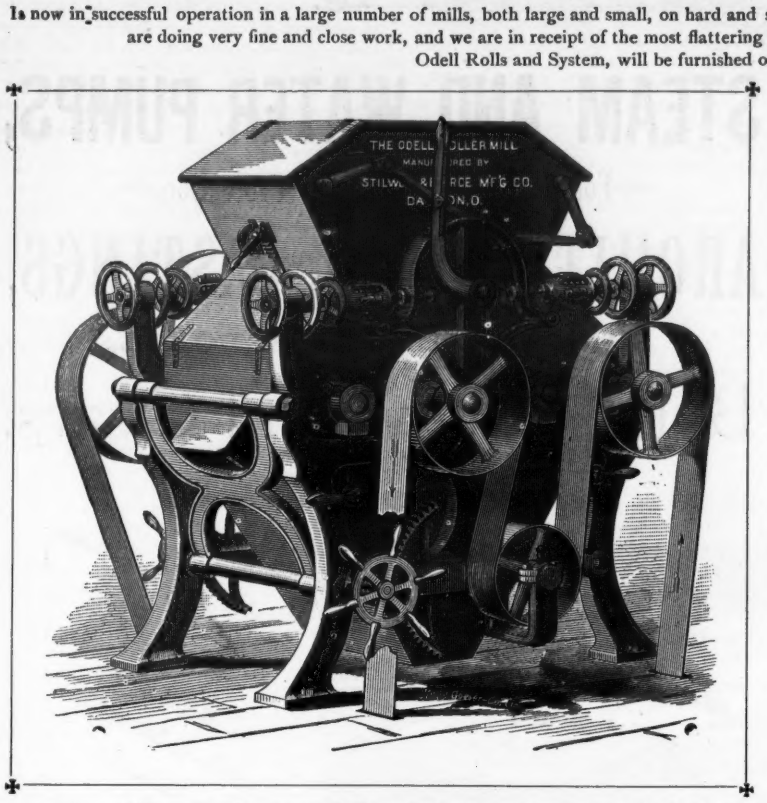
**Write for Descriptive Circular and Price Lists to Northwestern Agents, with**

*Headquarters* 401 *First Street South, MINNEAPOLIS, MINN.*

## PRAY MANUFACTURING CO.

# ODELL'S ROLLER MILL SYSTEM

Is now in successful operation in a large number of mills, both large and small, on hard and soft wheat, and is meeting with unparalleled success. All the mills now running on this system are doing very fine and close work, and we are in receipt of the most flattering letters from millers. References and letters of introduction to parties using the Odell Rolls and System, will be furnished on application to all who desire to investigate.




## Odell's Roller Mill,

Invented and Patented by **U. H. ODELL,** the builder of several of the largest and best Gradual Reduction Flour Mills in the country.

### AN ESTABLISHED SUCCESS!

We invite particular attention to the following **Points of Superiority** possessed by the Odell Roller Mill over all competitors, all of which are broadly covered by patents, **and cannot be used on any other machine:**

1. *It is driven entirely by belts, which are so arranged as to be equivalent to giving each of the four rolls a separate driving belt from the power shaft, thus obtaining a positive differential motion which cannot be had with short belts.*

2. *It is the only Roller Mill in the market which can be instantly stopped without throwing off the driving-belt, or that has adequate tightener devices for taking up the stretch of the driving-belts.*

3. *It is the only Roller Mill in which one movement or a hand-lever spreads the rolls apart and shuts off the feed at the same time. The reverse movement of this lever brings the rolls back again exactly into working position and at the same time turns on the feed.*

4. *It is the only Roller Mill in which the movable roll-bearings may be adjusted to and from the stationary roll-bearings WITHOUT DISTURBING THE TENSION-SPRING.*

5. *Our corrugation is a decided advance over all others. It produces a more even granulation, MORE MIDDLINGS OF UNIFORM SHAPE AND SIZE, AND CLEANS THE BRAN BETTER.*

### We Use None But the Best Ansonia Rolls.

Our corrugation differs from all others, and produces **Less Break Flour, and Middlings of Better Quality.**

Mill owners adopting our Roller Mills will have the benefit of Mr. Odell's advice and long experience in arranging mills. Can furnish machines on short notice. For further information, apply in person or by letter to the sole manufacturers,

## STILWELL & BIERCE MFG. CO., DAYTON, OHIO.

# WILCOX & SCAIFE,

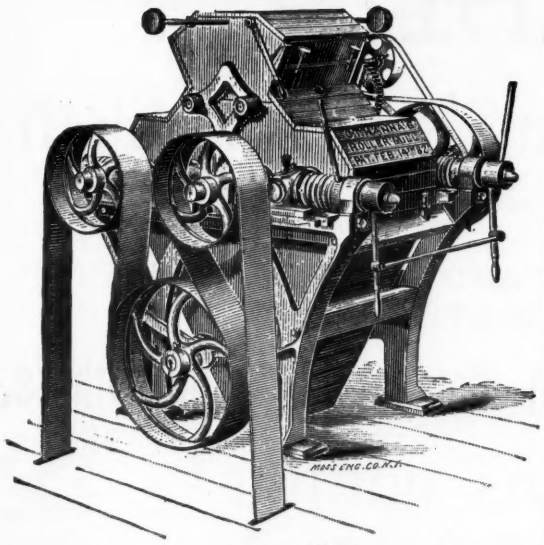
**Successors to Wilcox, Shinkle & Co.,**

## General Mill Builders and Furnishers,

AND MANUFACTURERS OF

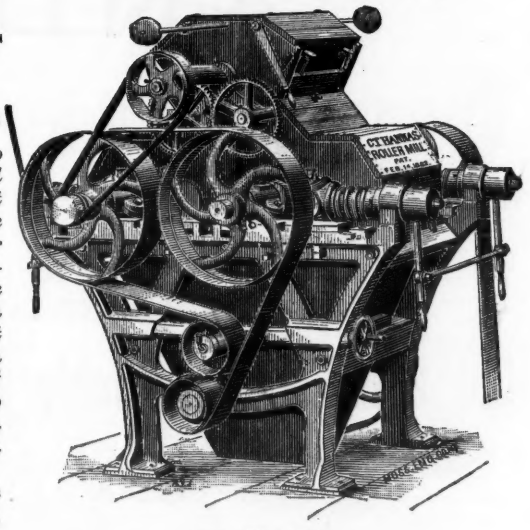
### C. T. Hanna Roller Mills,

Pat. Feb. 14th, 1882. Other Patents allowed.



DRIVING END.

***CORRUGATED TO SUIT EACH REDUCTION*** *of wheat to middlings and middlings to flour, leaving the bran broad and clean. All the horizontal adjustments are in direct line with line of contact. They are quite easily adjusted, and are positive in their action. The rolls are thrown apart by moving one lever, the reverse movement of same lever bringing them back to place of action again. They have a positive arrangement for keeping the rolls from contact with each other when running empty. Each end of roll has a separate vertical adjustment to keep them parallel with each other and in line with line of contact. They are driven by SUPERIOR belt movement, having large amount of belt surface for the amount of power to be transmitted, hence, no strain or slipping of belts. Have both positive and automatic feed.*



DRIVEN END.

## THEY ARE NOT SURPASSED BY ANY ROLLER MILL

*Address* **WILCOX & SCAIFE,**

**39 Water Street, PITTSBURGH, PA.**

## Minutes of the Dust Club.—XII.

BY THE SECRETARY.

The secretary called the meeting to order, and announced that as Bro. Stoneman was about to ride the goat that night he sent word that it would be impossible for him to be present, and moved that Bro. Bill Tovee take the chair, as no one was better acquainted with all systems of milling than he, and as it was his habit to preside at Bro. Hill's milling establishment in Houston street, New York, for a number of years, he thought it would add dignity to the club to elect him temporary chairman.

Bro. Tovee was unanimously elected to preside, and on taking the gavel said:

"Brother millers: You are all aware of the enormous taxes imposed upon us by the base corporations under which we live."

Bro. Dunn: "Here, none of that. You know I belong ——"

Bro. Grist: "I know where you belong, but we will let that slide, and I propose we get into the subject of milling, proper. I have a diagram of a spout here which I would like to show you. It may be of some use, and it may not, but in any case I give it for what it is worth. It

FIG 1

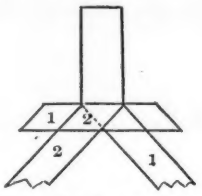



FIG 2

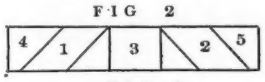
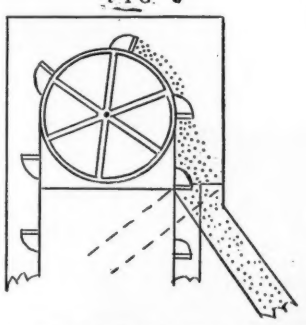
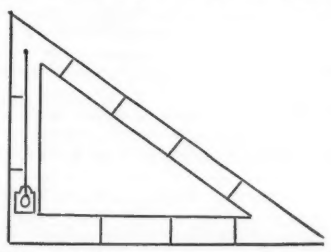



FIG. 3



is a very simple device for running the grain from elevators to different bins, or otherwise, as may be desired. I do not, of course, claim anything very new for it, but it will be found convenient, and it will not leak when used for flour or buckwheat. It consists of a sliding box as shown in Figs. 1 and 2. By sliding the box, as in Fig. 1, to the right, it can be seen that it changes the grain into spout 1, as per dotted lines. Fig. 2 can be made to discharge several ways. Fig. 3 shows a side view, the dotted lines showing another spout to which the grain can be changed by moving the slide."

Brother Slade: "I have no doubt but the method given by Brother Grist is a good one, and as some brother had been talking of making and proving a plumb and level, I will show a plan to construct one in a very short time at a small expense as per the annexed diagram,



which is so plain any one can understand it. The line and bob will always show when the wall or shafting, or whatever else it may be, is as plumb or level as you desire. All these little contrivances tell, as each one may have learned something which his neighbors did not, and when each gives a contribution, it will help to make things interesting. Of course it is very hard to be always original, and the same subject will have to be gone over often. I think it was John Stuart Mill, who told how gloomy and depressed he became by a haunting sense that the number of combinations upon a piano of the conventional number of octaves, was limited, and that in the natural order of things the capabilities of that instrument must some day be exhausted. It was not until the practical inexhaustibility of the key board was demonstrated that he recovered his poise. Some such night-mare, perhaps, has oppressed most thinking men when their nerves have lost pitch by some conditions of the liver. To me it often appeared as if the subject of milling would become worn threadbare, but the more I study the subject, and the farther I go into it, the more inexhaustible it appears to me. In fact it is in a sense like the key board of the piano, as the more expert you become the better the music. So it is in milling, the more a person studies, the more he sees in the business, and—"

Bro. Mace: "And very often the less he knows about it, unless he goes at the practical part of it. I think the roller question was quite ably discussed at the last meeting, and we owe a great deal to Wegmann who brought the subject so prominently before the millers of Europe. The porcelain rollers were very granular in texture, and were found to do excellent work in Austria. They were introduced afterwards into Great Britain and America, and either porcelain or biscuit china was used. The rollers looked attractive. Their surface was white and granular, and they did splendid work on middlings. Then the three-roll mill was introduced by Daviaro of Zurich. These rolls were placed vertically, one upon the other, and thus obtaining with three rolls and six journals as much work as was hitherto obtained by four rollers and eight journals, so that one-quarter of the power was saved. The top and bottom rollers are made to press equally from opposite sides from the middle roller, so that the friction of the two journals of the middle roller is considerably lessened, if not entirely annihilated or counterbalanced, and thus the friction is essentially reduced, and Daviaro's mills can be driven with less than one horse power. In a mill in Manchester, England, a ten-inch strap drives nine roller mills and all the accompanying dressing machinery.

"As compared with millstones, such well constructed rollers are proved to effect both in theory and practice, a saving in this direction of fifty per cent of power. Friction rollers are very important on account of reducing friction and helping the lubrication of the journals, so that a great deal of oil is thus saved. Where the friction roller is above the journal, others are provided below it to do the lubrication. The gradual development of the roller was difficult enough, but the prejudice with which its introduction had to be overcome in applying it to practical milling, was still more formidable.

"In Daviaro's system, the process is divided into four operations. First, the cracking of the grain; second, granulation of the cracked berry; third, cleaning of the bran, and, fourth, the reduction of middlings to flour. The cracking is an important operation, and has a double object. It is in reality but a continuation of the wheat cleaning, for the grains, in their passage through the rollers, rub against each other and are opened at the crease by the action of the rolls, and the dirt which is generally lodged there is removed. The germ is also unseated by the slight squeeze and it falls out; the grains are opened without being flattened out; the bran is not broken to any extent, and the grain is thus properly prepared for granulation. These mills reduce the berry to semolina and middlings while keeping the bran as unbroken as possible and making as little flour as the nature of the wheat will allow. This constitutes the main difference between the roller system and stone grinding. The stones produce the best flour at the beginning, and the rollers at the end.

"The small quantity of refuse which comes from the grain at the first break, is sacked up for separate treatment. The flour and fine middlings from the second and third dressing machines, are sent to another silk dressing machine, and are made into a third quality of flour, and the coarser particles which pass over the silk go to a purifier. The semolina from the second and third dressing machines passes to a second purifier, where it is first divided into three sizes and purified of the bulk of the bran, and conveyed into one of the smooth roller middlings mills, where it is softened into flour. A detacher is used, as they fall from the rolls partly in flakes. This facilitates the dressing of the meal. Here the flour of second quality is taken out, and the residue of fine middlings passed on by a feeder to the first purifier, where the fine bran, fluff, and dust are drawn off, leaving the fine middlings pure and ready for further grinding.

"This is done on another double roll provided for the purpose, and the flour is dressed in another cylinder, and the product obtained is of the first quality, being the product of middlings which have been purified several times. The tailings from the purifiers continue to be repurified, reground and redressed so long as any flour can be got out of them. By this means there can be twenty per cent of No. 1 flour, fifty per cent of No. 2 and ten to twenty per cent of No. 3 flour, or there can be a straight grade of seventy per cent got out of good wheat.

"Dr. Sellnick claims that the millstone is a failure. He says that the grain being very unequal opposes an unequal resistance to the forces employed for reducing it. It is difficult to separate the outer integument from the inner in consequence of being firmer, it being too tough to tear and too pliable to break. It would therefore seem that by employing the same force for both, the inner substance is easier and sooner separated than the husk, because the latter offers greater resistance and remains larger than the parts of the kernel, and may be separated accordingly.

"The starting point in all milling, and the great aim to be reached, is to produce all the inner portion of the berry without a particle of bran in it, and then as a matter of course it follows that the bran is as free from flour as the flour is from bran.

"If this can be done as cheaply and as well with the millstone as with rolls, there is no particular necessity of discarding the one for the other. Branless flour and flourless bran are what the miller wants, and the cheapest and most economical way in which this result is reached is the best for the miller, and it makes very little difference to him whether it is by rolls or millstones. In the reduction of grain to flour the several elements of which it is composed must be disconnected and a separate existence imparted to each, and the force which does this must be greater than the resistance offered to it. This can be done by a certain amount of pressure which must have its limits. There is, however, something more than pressure needed. There must be another force brought into operation which will draw the disconnected parts away from each other, and carry the several portions of ground grain away, so that other unground grains can take their place, because the pressure must not do any more than destroy the connection between the several parts, and the second force which is called impulsion must disperse the several disconnected parts and cause them to give place to the whole grain, or such parts of it as may not be fully ground, but each particular part must not only be pushing away the meal but receiving other chop at the same time. All these movements must be independent of each other so that no collision can take place between the stones or too much heat will be generated and the flour will be spoiled. If the friction between the stones is not stronger, and the force employed greater than is necessary to overcome the amount of resistance offered by the wheat, no heat will be generated. In the employment of millstones there is no independent regulation of the forces necessary for the grinding of the grain, so that the millstone is irregular and the friction is great. The sharpness does not last in the millstone. Impulsion is exercised by centrifugal motion, which is not always equal, particularly in stones which are not in proper balance, and besides this, centrifugal force increases towards the periphery and oversteps the bounds of requisite force, so that this keeps the flour producing limits in a constant state of change. The millstones, except in the best possible condition, are not well adapted for dealing tenderly with the husk, as it is torn by the diverging motion of impulsion, and heat increases in proportion to the pressure, so that attempts to separate and keep separate are made until the meal is discharged, and thus the contact remains too long unless the stones are small. It is for this reason that furrows are used and become a necessary expedient to interrupt the duration of the contact.

"It is now a settled fact that flour will be whiter and livelier from porcelain, than from chilled iron rollers, but the question is still in dispute as to the difference between rolls and stones."

Bro. Tovee: "I'm an old man and it's getting late. I cannot understand your new process business. In my day we did things differently, and where is the man among you to-day who could stand before Tom Hyer as a miller and grinder, ——"

At this junction brother Jack Stoneman was carried in between two brothers from the lodge, and whether it was the masons or Gambrinus goat he had ridden no one could tell, as he seemed all "knocked out."

The meeting immediately adjourned to sympathize with Bro. Stoneman in some mill or other near by, Bro. Mitchell, who is opposed to secret societies, objecting to so early an adjournment.

## Lubrication—IV.

BY J. VEITCH-WILSON.

*Boiling Point*, and under it *Evaporation* and *Durability*, which, as intimately connected with and governed by boiling point, may very well be considered along with it. Once more I may say of these points, as I said of flash and firing points, that they mainly concern mineral oils or compound oils, into which mineral oils enter. One of the radical and characteristic differences between fixed oils—i. e., oils of animal or vegetable origin—and volatile oil, i. e., hydrocarbon of mineral oils, is that on exposure to the atmosphere the former tend, by absorption of oxygen to thicken and to gum; witness the gummy deposits about machinery, with which we are all familiar, while all mineral oils, except those of the very highest grades, evaporate more or less rapidly, and sooner or later leave the surface on which they were exposed, dry. I regard this as the key to the otherwise inexplicable but indisputable difference (see foot note to Table 1) between animal and vegetable oils on the one hand, and mineral oils on the other, and as a satisfactory explanation of the complaints we sometimes hear of dry bearings and heated journals where inferior oils have been used. Nor is this to be wondered at, for although I know several oils which lose nothing when exposed to our test for evaporation, viz., 10 hours at 212° F., I have also met with oils, otherwise accounted good, which lost 5 per cent and in one or two cases even 10 per cent under the same conditions; while Professor Ordway, to whom I have already referred, reports that by a much milder test than ours, viz., exposure for 12 hours at 140° F., he found oils which lost all the way up from nothing to 24.9 per cent. One hundred and sixty-four samples which Professor Ordway tested gave him the following results:

TABLE 3.

| Amount of loss per cent... | 1 | 5 | 10 | 15 | 20 | 25 |
|---|---|---|---|---|---|---|
| Number of samples..... | 11 | 48 | 46 | 31 | 14 | 4—164 |

The difference is is remarkable as indicating the superiority of British oils.

Let me add, in justice to the mineral oil refiners of this country and to the leading American refiners, in whose products your confidence may well be shaken by the figures I have just put before you, that for those who know how to test their oils and will take the trouble to do so, there are plenty of oils, for those who will pay for them, which come up even to our severe standard, i. e., which lose nothing when exposed for 10 hours at 212° F.

*Freezing Point* does not call for discussion. I inserted it merely to call your attention to the trouble which may arise in drawing oil from a cask or tank in cold weather, and to the danger of the injury to bearings exposed to cold in case the oil should freeze in its cups or in tubes.

Before passing from this part of my subject, I think that, although I do not wish to obtrude my opinions upon you, I imperfectly fulfill my duty towards you if I do not submit what appears to me to be the natural deduction from the facts and arguments which I

heve placed before you. In few words, it is—that, bearing in mind the natural and almost ineradicable tendency of animal oils to develop acid, and of vegetable oils, by absorption of oxygen, to gum and to clog bearings, and to induce spontaneous combustion—bearing also in mind that mineral oils can now be obtained in every respect as soft as the finest animal oils, and that the admixture of mineral oil with animal or vegetable oil, neutralizes the acidity in the one case, and the acidity of oxidizing tendency in the other, I am of opinion that the safest, most efficient, and most economical lubricants for all manner of bearings, are to be produced from judicious mixture of animal or vegetable with good mineral oils.

We come now to the consideration of the most important question of the day in connection with lubrication. I refer to the lubrication of steam cylinders and valves, and gas and hot air engines, in which, in addition to the proximate questions of pressure and speed, we must consider the effects of heat and steam upon the lubricants themselves, and the reaction of these in turn upon the metal with which they are brought in contact.

In former times engineers, upon the principle, I suppose, that sauce for the goose was sauce for the gander, were content to lubricate the internal portions of their engines with such materials as they employed for ordinary bearings. They did not fail to notice that in many cases pistons were corroded, rings destroyed, bolt heads eaten away, and that deposits were found in the cylinders, which had periodically to be cleaned out to prevent more serious damage. In the case of surface condensing engines, still greater trouble was experienced. The condenser tubes became coated or choked up, and were rendered useless, and in the boilers also, pipes and flues became similarly coated to such an extent that accidents followed from plates burning or flues collapsing. Capt. Cole, of our own royal navy, cites, in a very interesting pamphlet, which he has published upon cylinder oils, the case of a vessel of the French navy, which, after having had new boilers put in, at an expense of £7,200, was despatched on foreign service. She was absent two years, and during that time used only olive oil, refined and neutralized by a process invented by M. Allaire, which was supposed to remove all acids even from the composition of the oil. In spite of that, when the vessel returned, her boilers were found to be completely worn or eaten out, although during her period of service she had only had 2,200 hours' steaming. Her boilers, therefore, cost £3 5s. 5d. per hour. Of those who noticed these results, some attributed them to the proper source, viz., the lubricants employed, and vainly sought relief by endeavoring to obtain finer qualities of the same materials. Others, not less cognizant of the damage they sustained, or of its cause, were content to accept it as inevitable, while a third party attributed it, in many cases with a certain amount of justice, to the water employed in generating steam, and many are the devices—chemical and mechanical—meant to overcome this possible source of trouble.

I am bound, however, at this point, to admit that, while I have, to the best of my knowledge, explained the experience of the majority of the steam users with whom I am acquainted, I have, in the course of my peregrinations, met with many isolated cases, and even occasionally with districts, in which I have found tallow or suet used for cylinders without injury and with perfect satisfaction. At an earlier stage in my remarks I referred to the difficulty of reconciling conflicting statements and practices of men equally intelligent, equally observant and equally interested in doing the best they can for their own advantage. I added that in many cases a little inquiry revealed differences in the conditions with regard to the treatment of ordinary bearings, sufficient to justify considerable variation in practice. But when, on the one hand, I am told by a goodly number of steam users that they find tallow a really good lubricant for cylinders, giving no deposit, doing no damage, and, on the other hand, and by a greater number, I am told that tallow is a continual source of annoyance and expense—filling their boilers with grit, corroding pistons, rings, bolts and valves, and involving time for clearing and money for repairs, I admit that I am in the presence of a difficulty which seems to defy solution, and it only remains for me, and for others in my position, to weigh the evidence on both sides, and to accept that as the rule which has the greatest amount of reliable evidence on its side, and which is most in accordance with the known facts of chemistry, and regarding the other as an exception strive to find reasons for the divergence. As far as my experience goes, the bulk of the evidence which I have been able to obtain, and of the information which I have been able to collect, is, both in respect to the number and consistency of my informants, greatly on the side of those who maintain that tallow, etc., does injury to cylinders. Besides this, I have had many opportunities of examining cylinders, or parts of them, in which damage was apparent, and in which tallow or other animal fat had alone been used. Nor is it unfair to attribute this damage to the lubricant employed, since chemists agree in telling us that all animal and vegetable fats and oils are of their nature and essence compounds of acids, which, though harmless while they remain in their normal condition, invariably attack and corrode all metals with which they come in contact when they have been partially or wholly liberated by either natural or artificial decomposition. In support of these assertions, I had intended to read extracts from letters from various engineers, giving their experience of tallow and other lubricants, and quotations from various chemical authorities with regard to the character of animal and vegetable oils, but time forbids, and I must be content to let the reasonableness of my arguments be their justification. The best proof I can give you of the assertion that animal and vegetables fats are compounds of fatty acids and glycerine, is the fact that the separation or preparation of these acids is the foundation of a very important business, and is regularly practised in this country and on the continent in order to obtain material—stearic acid—for candle manufacture.

In Wagner's "Chemical Technology," in an article on the subject, I read: "Fats consist of palmitic, stearic, and oleic acids and glycerine." Next, that the preparation of the fatty acids can be effected by:

(*a*) Saponification with lime.

(*b*) Sulphuric acid and subsequent distillation.

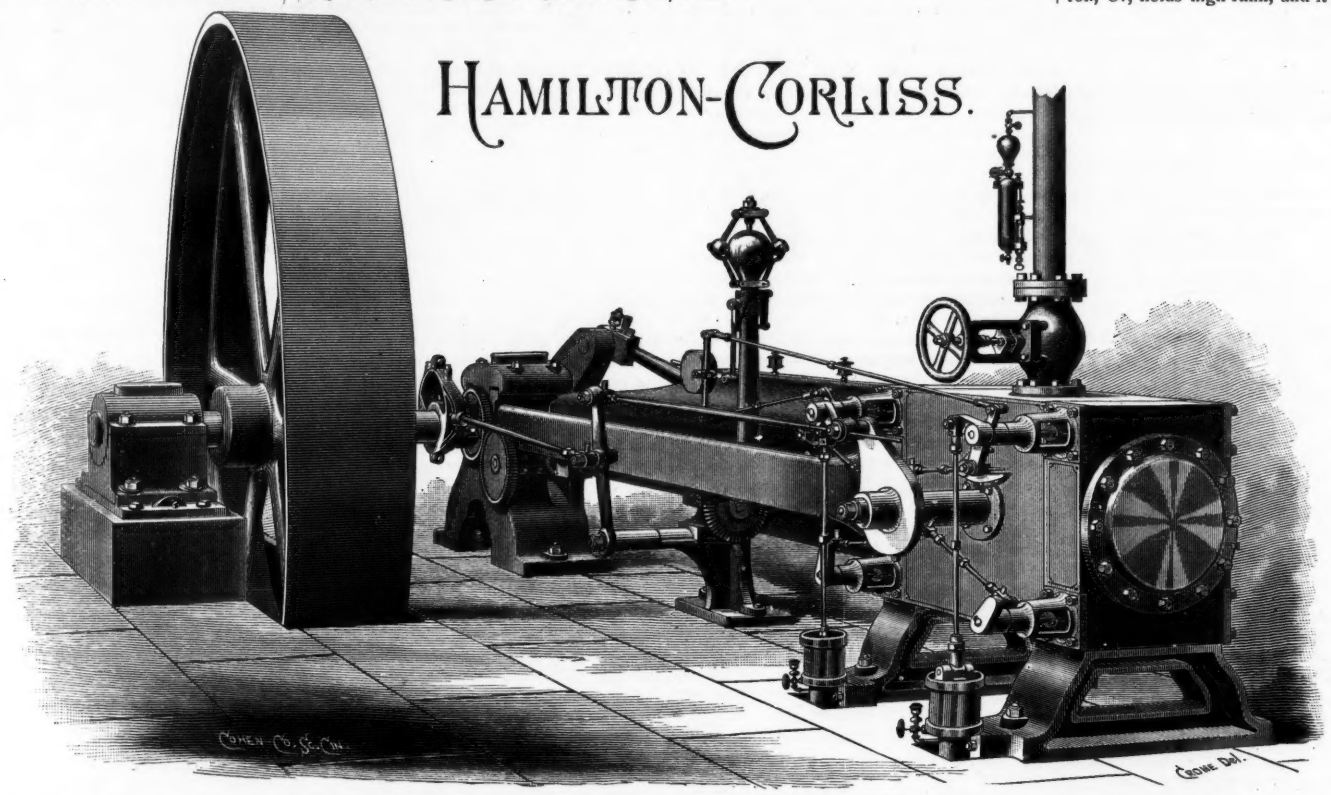
(*c*) Superheated water and high pressure steam.

(*d*) Steam and subsequent distillation.

These two latter conditions—steam at a higher or lower temperature—are present in every steam cylinder. I ought to add that, although several patents exist for obtaining fatty acids by distillation, that process is not now practiced, as it was found that a considerable percentage of glycerine was lost by it. Fatty acids are now obtained commercially by saponification first, followed by distillation. You have here samples obtained by this process, which I exhibit in order to give you some idea of what is being produced in your cylinders. [Samples were here exhibited.]

You will naturally remark, gentlemen, that to produce these samples a higher temperature is required than is to be found in any cylinder. True, different materials require different treatment, and authorities also differ as to the temperature at which decomposition can be most advantageously carried on, but all agree in putting it somewhere between 550° and 600° F.—a temperature never obtained in a steam cylinder. By another process, of which I have read an account, decomposition is obtained at about 350° F., and I am informed that it begins at a much lower temperature, though, of course, the rate at which it proceeds will be regulated by the conditions of temperature and pressure under which it is effected; and I do not think that you will be disposed to question that what goes on rapidly at high temperatures and less rapidly at comparatively moderate temperatures goes on slowly, though it may be almost imperceptibly, under ordinary atmospheric conditions, and thus accounts for the tendency which ordinary oils exhibit to become rancid through age, and to develop acidity. Upon this point, Mr. A. H. Allen, of Sheffield, who has given special attention to the study of oils, in the second volume of his work upon Commercial Organic Analysis, says (p. 174): "Although when freshly manufactured, an oil may be free from any trace of acid, it is not unlikely to acquire a very sensible acidity in time." Again: "Although at the time of using, an oil may be wholly free from acid reaction, it may, if of animal or vegetable origin, readily become acid, and hence corrode the metallic surfaces it is employed to lubricate." This, he adds, "is notably the case when the oil is exposed to the action of high pressure steam, as, under such conditions, all the fat oils suffer decomposition more or less readily with formation of free fatty acids and glycerine."


HAMILTON-CORLISS.





### The Hamilton-Corliss Engine.

Among the many varieties of Corliss engines the Hamilton-Corliss, built by the Hooven, Owens & Rentscheler Co., Hamilton, O., holds high rank, and it is claimed by the manufacturers that there is a saving of fuel of from 30 to 40 per cent, and that it has few, if any, superiors among the Corliss family of engines in mechanical construction, regularity of speed, economy of steam, and accessibility of all its parts. Besides this there is a saving of oil and an increase of all that relates to the production of power. Its mechanical construction is so perfect that there are no stoppages by "break downs" and hence little cost in repairing. The new high speed governor which the manufacturers have attached, causes the speed to be very regular under varying loads and steam pressure, while no part of the regulating medium enters the steam chest out of sight of the engineer, and subject to the corrosive action of steam and the oils used in lubricating the valves and piston. All the larger parts are made from drawings and symmetrically proportioned to the size of engine, while the smaller parts are made to gauges, so that the manufacturers are always ready to duplicate any part if needed for repairs. The cylinders are made of the best iron, and the shafts are of hammered wrought iron with long bearings, the diameter of which equals one-half the diameter of the cylinder. There are several sizes of engines built, with cylinder from 12x30 to 24x60, and from 44 to 240 horse power. Further particulars will be supplied by the manufacturers.

# THE GEO. T. SMITH IMPROVED
# Middlings Purifier.

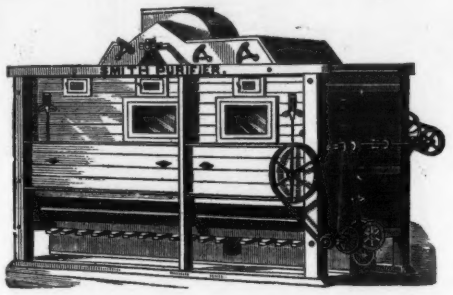
## EXCLUSIVE FEATURES.

PATENTED AUTOMATIC BRUSH

PATENT SELF-REGULATING FEEDING DEVICE.

PATENT COIL SPRING ECCENTRIC CONNECTION.

**Easily Adjusted.**




*2,500 SOLD IN 1882.*

PATENTED APPLICATION OF GRADED, CONTROLLABLE AIR CURRENTS.

PATENT CLOTH TIGHTENER.

PATENT DOUBLE CONVEYORS, IN SAME HORIZONTAL PLANE.

**Light Running.**

## ADAPTED TO ALL SYSTEMS OF MILLING.

*Fifteen Sizes, Suitable for Mills of all Capacities.*

*Single, Double and Aspirator Machines.*

In the U.S. alone More than **SEVEN THOUSAND** Are Now in Operation.

**SPECIAL NOTICE.** *We guarantee every owner of a* ***GEO. T. SMITH MIDDLINGS PURIFIER*** *absolute immunity from loss by suits for infringement.*

## The Proceedings of the Millers' National Association

**at their Cleveland meeting, held Jan. 31, disclosed the fact that the manufacturers and purchasers of almost every Purifier now offered to Millers are liable to claims for royalty. To secure our patrons against damage from this source we have, at great cost, procured of the Consolidated Middlings Purifier Co. license under all their patents on Purifiers, more than eighty in number. Our license to use the traveling brush and graded air current (without which a successful purifier can not be built) is exclusive. The importance of these facts to purchasers of purifiers cannot be over estimated.**

*We are giving greater attention than ever before to the mechanical details and material used in the construction of our machines, having substituted* ***STEEL SHAFTING*** *for iron, and adopted* ***HARD WOOD*** *for frames; but notwithstanding the immense outlay incurred in securing protection under all existing patents, and the cost of constant improvements,* ***OUR PRICES REMAIN UNCHANGED.***

## GEO. T. SMITH MIDDLINGS PURIFIER CO., JACKSON, MICH.

THE

# STANDARD CENTRIFUGAL REEL!

## THE LATEST AND BEST.

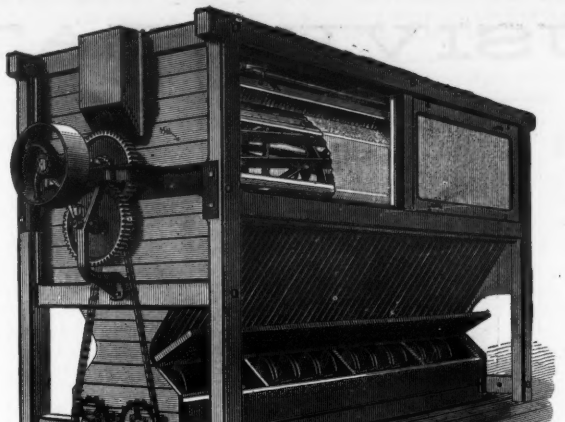
### WE CLAIM

*Greater capacity than any other reel of the same size.*

*The lightest running and easiest handled.*

*The best workmanship and the greatest durability.*

*More service from each square foot of cloth, and less wear of the cloth than any other reel whatever.*




### IT HAS

*A 10 sided reel on which the cloth can be stretched tight and kept so, which can not be done on a round reel.*

*A brush attachment which sweeps each side of the reel perfectly every minute. No other polygonal reel has, or can have, this necessity. It may be used or not, as the material being treated may require.*

This reel contains every feature which experience has shown to be necessary. It has the double conveyors side by side, and the material can be cut off every four inches if necessary. In case of a break in the silk this improvement allows the reel to be run until the miller has time to repair it. The brush can be regulated from the outside while the reel is in motion, to bear on the silk lightly, heavily, or not at all. The feed is automatic and air-tight, and there can be no center draft through the cylinder.

We are so confident of the correctness of our assertion that this is the best reel in the market that we will gladly ship it to any responsible party on thirty days' trial and let him be the judge as to its merits.

Office of the NORTHWESTERN MILL, Minneapolis, June 6, 1883.

Messrs. KIRK & FENDER, City.

Gentlemen:---In answering your inquiry as to how we like the Centrifugal bought of you, we have but to say that it gets "to the front" in better style than anything we have yet seen. It is giving us perfect and entire satisfaction. Yours respectfully, SIDLE, FLETCHER, HOLMES & CO.

FOR FURTHER PARTICULARS ADDRESS

## KIRK & FENDER, Minneapolis.

## THE OLDEST MILLFURNISHING ESTABLISHMENT IN THE WEST.

# THE NORTH STAR IRON WORKS CO.

MINNEAPOLIS, MINNESOTA.

## Machine Shop, Foundry, Boiler Shop

*Manufacturers and Dealers in Shafting, Pulleys, Gearing, Etc.*

## BOLTING CLOTHS

which we import directly from the manufacturers in Switzerland, and which *we warrant equal to any brand in the market*, cloths made up ready for the Reels in the latest improved manner, using the best of Ticking and Silk Twist. Please write for prices discounts and samples of cloth before purchasing elsewhere.

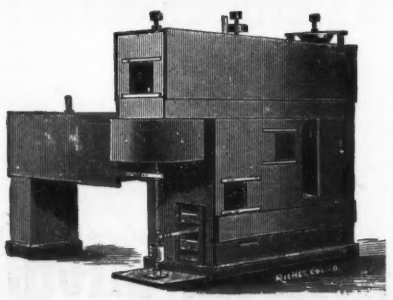
**MILL BUILDERS AND FURNISHERS** Plans, Specifications and Estimates furnished upon application for complete new flour mills or for remodeling old mills into new process mills. Also manufacturers of **Bolting Chests, Centrifugal Reels and Dust Catchers.**

**CHILLED IRON ROLLS, SMOOTH AND CORRUGATED, A SPECIALTY.** Correspondence solicited. Price lists and discounts furnished on application. Write for catalogue and pattern lists.

NORTH STAR IRON WORKS CO.

45 lbs. Flour. THAYER'S 60 lbs. Wheat.

# Pneumatic Middlings Purifier!



## Thayer's Common Sense Three Reel Bolt

ACKNOWLEDGED TO BE THE

GRANDEST SUCCESS OF THE AGE.

Why? Because the principles envolved are simple and practical, and adapted to custom mills as well as merchants, and brings (when our system is adopted) small mills in competition with merchant mills, and places them on an equal footing as to quantity and quality produced. Bolting cloths arranged to our system made to order and on liberal terms. For further information regarding our Bolt and Purifier, address

## W. & N. THAYER & CO.,

WESTERVILLE, Franklin Co., O., U. S. A.

A WORD TO

## MILLERS AND MILLWRIGHTS.

If you contemplate the purchase of a first-class Purifier, one that is meeting with unbounded success, we invite your attention to a view of the many advantages that can be obtained in the purchase of a Pneumatic Middlings Purifier:

1. It costs less than any other first-class purifier.
2. It takes less power to run it than any other purifier manufactured.
3. It is *no rattler*, being noiseless when in operation.
4. It agitates the middlings, making a separation of the coarse from the fine, by air alone, *purifying them separately on the same machine*, thereby saving granulation.
5. It embodies two Purifiers in one.
6. It has greater capacity than any other purifier made, according to size and space occupied.
7. It is the only purifier where the operator has perfect control of all the air currents by the use of valves.
8. It is the most simply constructed purifier in existence, avoiding all complications.
9. It has no conveyors or endless chains to get out of repair.
10. It has the best feed in the world, and is always ready when the miller is.

W. & N. THAYER & Co.,
Westerville, Franklin Co., Ohio, U. S. A.

## The Smith Patents Victorious in Canada.

In the Supreme Court of Canada, Tuesday the 19th day of June, 1883.

Present: The Hon. Sir William Johnstone Richie Knight, chief justice, the Hon. Mr. Justice Strong, the Hon. Mr. Justice Fournier, the Hon. Mr. Justice Henry, the Hon. Mr. Justice Taschereau, the Hon. Mr. Justice Gwynne.

Between George Thomas Smith et al., appellants (plaintiffs), and John Goldie et al., respondents (defendants).

The appeal of the above named appellants (plaintiffs) from the order of the court of appeal, for Ontario, made in this cause the 30th day of June, 1882, and dismissing the appeal of the said appellants from the decree of the court of chancery, made the 23rd day of June, 1880, coming on to be heard before this court on the 28th, 29th and 30th days of November last in the presence of counsel, as well for the appellants as for the respondents, whereupon and upon hearing what was alleged by counsel aforesaid, this court was pleased to direct that the said appeal should stand over for judgment, and the same coming on this day for judgment, this court did therefore declare, order and adjudge that the said appeal should be and the same was allowed. And this court did further declare, order and adjudge that the appellant (plaintiff), George Thomas Smith was the first and true inventor of the invention described and claimed in the letters patent, number 2,257, mentioned in the first paragraph of the appellants' (plaintiffs') re-amended bill of complaint. That the said letters patent are good, valid, and in full force and effect, and that the appellant (plaintiff), George Thomas Smith has been from the date hereof and still is entitled thereunder to the exclusive right, privilege and liberty of making, constructing, using and vending to others to be used the invention in the first paragraph of the said plaintiffs' re-amended bill of complaint described as follows: "In combination with the bolting surface of a flour bolt, through which a current of air is made to pass by means of an air chamber and fan, or its equivalent, a brush, or a series of brushes, arranged to traverse the under surface of said bolt substantially for the purpose set forth in the said letters patent, and the specification thereto of clearing the bolt of particles of flour adhering thereto," subject to such rights as his co-plaintiffs now have under the assignments and licenses in the said bill of complaint set forth. That the patents 1739, and 1793 in the respondents' (defendants') answers mentioned were never valid and form no defence to the appellants' (plaintiffs') said patent, and that the machines constructed by the respondents (defendants) in the pleadings mentioned are infringements of the said letters patent of the said George Thomas Smith, and that the appellants (plaintiffs) are entitled to an injunction restraining the said respondents (defendants) and each of them and their and each of their servants, workmen and agents during the continuance of the letters patent or any extension of them from making, constructing, using or vending to others to be used any machine containing the same combination as the said machines in the pleadings mentioned or only colorably differing therefrom or any other machine constructed according to or involving the appellants' (plaintiffs') said patented invention or only colorably differing therefrom or being an infringement of the appellants' (plaintiffs') said patent and from in any way infringing the appellants' (plaintiffs') said patent or causing or procuring the same to be infringed. And that the appellants (plaintiffs) are entitled to have the respondents (defendants) discover upon oath all machines in their possession or made, used or sold by or for them or either of them containing the combination hereinbefore set forth in infringement of the plaintiffs' patent, and of the amounts received therefore and of the cost thereof, and of the names of the purchasers thereof. And that the appellants (plaintiffs) are entitled to an inquiry and to be paid the amount found due upon such inquiry for damages sustained by the appellants (plaintiffs) or any of them from the making, constructing, using, selling or vending to others to be used by the respondents (defendants) or any of them and by the persons to whom they have sold, given, or let the same, of any of the said machines containing the combination hereinbefore set forth in infringement of the said patent of the appellant, Geo. Thos. Smith, since the filing of the appellants' (plaintiffs') said bill of complaint and for six years previously and also of the amount of the profits received by the respondents (defendants) from the making, constructing, using and vending to others to be used, the said or any machine infringing the plaintiffs said patent; namely, any machine or part of machine containing the combination hereinbefore set out from the date of the filing of the said bill and for six years previously. And that the appellants (plaintiffs) are entitled to be paid the costs of this suit, including the costs incurred by them in the court of chancery or chancery division of the high court of justice for Ontario, in the court of appeal for Ontario, and also in this court forthwith after taxation thereof. And for the purposes aforesaid this cause is referred back to the chancery division of the high court of justice for Ontario to make such orders and directions as may be necessary. And this court doth further order that the registrar of this court do deliver up to the appellants and respondents the exhibits filed or deposited herein by them respectively.

Certified a true copy.

(Signed) ROBT. CASSELS, Registrar.

## MILLING AT MILWAUKEE.

[SPECIAL CORRESPONDENCE.]

Only four of our mills have been in operation the past week, and the production is small. On the Fourth a general suspension took place and idleness prevailed. Previous to the Fourth, wheat and all classes of cereals were lower, but more confidence is now manifested, and prices are firmer,—especially is this the case with oats and corn, and shipments are heavy. No material advance is noted in wheat, and I look for no sudden reaction, as the large stocks of both flour and wheat will prevent this. If, however, the spring wheat crop should suffer any considerable damage, prices will probably advance slowly, but extreme prices for the coming year, I think, will not prevail.

During the past week, beginning July 1st, we have experienced extremely hot weather, and several scares have occurred about hot wheat in our elevators, but they were entirely without foundation. No reports are received yet about the effects of the weather on flour, but I think the condition of the wheat will prevent any serious effect this year. England is receiving large supplies of Indian, Russian and Australian wheat at lower prices than for years, which seriously interferes with our export inquiry for both wheat and flour, while stocks are still so large there that at any advance, or even at present prices of wheat and flour, buyers will not be inclined to take hold.

More animation is evidenced in the demand for flours for the city trade, retailers being more liberal in laying in their monthly stocks than for some time past. Patents are quotable at $6.50 to $7, and bakers' at $5.25 to $5.50; City mills rye flour at $3.50. Feed is in good demand at the following prices: Sacked bran $11.75, and bulk at $9.75; Sacked middlings at $14 and bulk at $12.

Our mills in operation show the following result for the week:

| Operated by | Mill. | Bbls. |
|---|---|---|
| J. B. A. Kern & Son | Eagle | 800 |
| Schlessinger & Daggett | Northwestern | 400 |
| E. Sanderson & Co. | Phœnix | 800 |
| Stern & Wohlrab | Jupiter | 200 |
| Total daily production | | 2,200 |

Only five days of milling this week which limits the week's production to 11,000 bbls.

The stock of wheat on hand this date is 1,861,000 bus. as compared with 760,000, last year and 1,507,000 bus. in 1881.

| FLOUR—RECEIPTS. | Bbls. |
|---|---|
| For the past week | 61,665 |
| Corresponding week last year | 35,579 |
| Since Jan. 1, 1883 | 1,612,564 |
| Corresponding time in 1882 | 1,558,505 |
| SHIPMENTS. | |
| For the past week | 77,519 |
| Corresponding week last year | 35,866 |
| Since Jan. 1, 1883 | 1,905,071 |
| Corresponding time in 1882 | 2,021,614 |
| WHEAT—RECEIPTS. | Bus. |
| For past week | 86,624 |
| Corresponding week last year | 102,210 |
| Since Jan. 1, 1883 | 3,930,467 |
| Corresponding time last year | 3,569,616 |
| SHIPMENTS. | |
| For past week | 90,700 |
| Corresponding week last year | 90,035 |
| Since Jan. 1, 1883 | 785,537 |
| Corresponding time last year | 801,621 |

***

The Gem mill, operated by F. H. Magdeburg & Co., is closed for repairs.

Coopers here are very short of work, as what little flour is being manufactured is for export and is being packed in bags.

A fishing party, consisting of Harry Sanderson, Robt. Nunemacher, C. A. Chapin and Will Sanderson, left here to-day for Winneconne.

J. B. A. Kern & Son are arranging to secure all their hard wheat from Duluth during navigation, and store it in their elevator here for further use.

The Daisy roller mill is putting in a line of Gray's centrifugal reels, made by E. P. Allis & Co. After overhauling, this mill will have a capacity of 450 bbls. per day.

A serious accident occurred this morning in the Kern mill. A miller, named A. Bennett, who is fifty-nine years old, fell from a walkway around the bolting chest and broke his left leg below the knee, and also sprained his right leg. Dr. Marks attended him and he will probably recover.

McGeoch's proposed settlement of 50 cents on the dollar has been accepted by all except two or three of his creditors. To make this settlement it will require $650,000 cash, which he claims he can raise. With this accomplished, Mac. will once more be seen among the bulls and bears on 'change. Very few of his creditors expected he would be able to make such a liberal proposition.

The iron moulders held their annual picnic at Milwaukee garden on July 5th, in consequence of which E. P. Allis & Co. closed their works both the 4th and 5th. This concern is turning out the largest fly wheel pulley ever made in the west. It is 24 feet in diameter, 56 inches face and weighs 30 tons. It belongs to the Reynolds-Corliss engine they are sending to the Louisville exposition.

The receipts and shipments of flour here show that for some time back Milwaukee has made very little flour compared with former years, while country millers have been shipping large quantities through here for both the eastern and European markets. No market in the United States can manufacture flour cheaper than here, and if country millers would govern their production by our millers, they would show better results at the end of the year. BRIGHTON.

Milwaukee, July 7th.

# SPECIAL * NOTICES.

### WANTED.

Situation by a first class miller. Has had 15 years' experience in stone and roller mills. Address M. S. G., office NORTHWESTERN MILLER.

### OPEN FOR ENGAGEMENT.

A first class miller, sober, industrious, reliable and up to the times. Best of references. Correspondence solicited. Address P. O. Box 27, Kossuth, Ia.

### A RARE CHANCE.

A water power custom flour and saw mill, excellently located, for sale at a bargain. Address, N. W., care of NORTHWESTERN MILLER, Minneapolis, Minn.

### FOR SALE

At half price of new, two of Jonathan Mills' degerminators; run only about 5 months, all perfect in every respect. Reason for selling, prefer rolls in place of them. UNION MILL CO., Waterloo, Ia.

### WANTED.

Young man two and one-half years as correspondent and amanuensis with one of the largest milling companies in this country, is open for engagement in a like capacity. Can give best references. Fully conversant with the export trade, and general routine office work. Address A. B., this office.

### FOR SALE.

A good extra water power mill fed by lake water the year through. Has 4 runs of 4-foot buhrs; will carry 7. Has 12-foot head, and is located in a pleasant town; good schools and churches; one railroad. This is a good safe investment. Poor health the cause for selling. Address CHARLES FRENCH, St. Cloud, Minn.

### FOR SALE.

Half interest in a good flouring mill in a lively northern Iowa town. Three runs of 4-foot buhrs. Everything complete and in good condition. Address THOMAS & SON, Keystone Exchange, Room 10, 327 Hennepin Ave., Minneapolis, Minn.

### FOR SALE.

Half interest in a good flour mill located in a lively northern Iowa town. It has 3 runs of 4-foot buhrs and is complete and in good condition. Address THOMAS & SON, Keystone Exchange, 327 Hennepin Ave., Minneapolis, Minn.

### FOR SALE.

Five run of four foot buhrs, and one extra runner, extra selected stock, dressed and in good running order with spindles, lighter, screws etc.; one 30½ inch Leffel turbine in perfect order; pair of smooth rolls.

Address VICTOR, (this office.)

Will E. D. Munger please send address.

### SITUATION WANTED.

Competent machine shop foreman and draughtsman of seven years' experience in railroad and general manufacturing and repair shops, wants situation as superintendent or foreman in good shop. References to former situations and testimonials as to ability, etc., furnished. Address, SUPERINTENDENT, care NORTHWESTERN MILLER.

### WANTED.

A thoroughly competent head miller, to take charge of a 500 barrel mill, located in a country town near St. Paul. Those sensitive about having their record thoroughly probed need not apply. Address, with full references, ROLLER MILL, Office of the NORTHWESTERN MILLER, Minneapolis.

### ENGINE FOR SALE.

A 10x30 Reynolds-Corliss engine, built by E. P. Allis & Co., steam pump, 40 H. P. flue boiler with boiler front, grates, etc., all complete. Has been been used but a short time, and everything is in first class order. Will sell cheap for cash. HASHOW, MAISH & DAVIS, Variety Iron Works, Minneapolis, Minn.

### WANTED.

By a German miller 33 years of age, who has had 18 years' experience, a steady situation, or would rent half of small mill—not over 150 barrels. Has been in this country 3 years, but would prefer a German mill. No objection to the country. Can furnish best of reference. Address C. B., this office.

### MILL WANTED.

To buy or rent in or near some railroad town with good custom and home trade. Capacity from 30 to 50 barrels per 24 hours, or would take an interest in some good mill. Northern Iowa or Minnesota preferred. Address X. Y. Z., office NORTHWESTERN MILLER, Minneapolis, Minn.

### SECOND HAND MACHINERY FOR SALE.

Having changed our mill to the roller system, we have a lot of machinery (second hand) for sale cheap. Parties desirous of getting good bargains on some buhrs, separators, and smutters can obtain further information by addressing Wahpeton Mill and Ele. Co., Whapeton, Dak.

### SITUATION WANTED.

By a German miller and millwright who has had twenty-three years' experience and thoroughly understands modern milling, both roller and buhr process. Can furnish good recommendations. Has been in this country nearly three years and can speak English pretty well. Would engage in either building or running a mill. Can come immediately. Address WALARION MATUSZEWSKI, P. O., Box 77, Lisbon, Ransom county, Dak.

### FOR SALE.

Saratoga mill at Waukesha, Wis., five runs of stones and all necessary cleaning and bolting machinery. Only mill in town, in center of village of 4,000 inhabitants, and surrounded by good grain growing and wealthy farming country. Shipping facilities unsurpassed, being on both the St. Paul and Northwestern railroads, good water power, and location the very best. Apply to C. A. BLODGETT, or B. BOORMAN, Waukesha, Wis.

### HINTS ON MILL BUILDING,

By R. James Abernathy. The most modern book on milling. Three hundred octavo pages, fully illustrated, and containing full accounts of modern milling methods, together with many valuable tables and much useful information for mill owners, millers and millwrights. A book everyone interested in milling should have. Price $4. Sent postpaid on receipt of price, with one year's subscription to the NORTHWESTERN MILLER, $4. Address,

NORTHWESTERN MILLER,
Minneapolis, Minn.

### BOOKS WANTED.

If you have any scientific, technical, reference or standard books, newspaper or magazine files, etc., suitable for a large general library which you want to dispose of for cash at a low price, send full description and price to the undersigned and you will receive a reply by return of mail. Old and rare, or modern engravings of merit are also wanted on the same terms. Address

LIBRARIAN,
Care NORTHWESTERN MILLER,
Minneapolis, Minn.

### NEW MILL FOR RENT.

A new four-run steam flouring mill for rent at low figures at Conway, Ia. No other mill within ten miles. The mill is complete from top to bottom. Basement, three stories and attic; 14x20 engine; boiler 54 inches by 14 feet. Iron husk frame, belt drive, two buhrs on wheat, one on middlings and one on corn. One smooth roll on cut-off from purifier, and a corrugated roll on bran. No. 3 smut purifier with dust catcher. Six 18-foot reels with double conveyors. Plenty of cleaners and exhaust fans. Flour packer. Four sets of scales. In short, the most complete and finest finished four-run mill in Iowa. None but a good miller, with means, need apply. Address C. A. Donnell & Co., Conway, Ia.

### NATIONAL MILLING EXCHANGE.

We are making an exclusive business of the sale and exchange of mill property, and so far as we know are the only firm in the country giving entire time to this matter. Persistent, judicious advertising and vigilance, coupled with experience, give us facilities for finding buyers unequaled by any concern in the country. We offer the largest number of good chances in all the western states and Canadas, so that buyers looking for locations should consult us. Send for latest list of steam and water power mills for sale and exchange all over the west.

**J. M. MOORE, & CO.,**
**213 North Eighth Street, St. Louis.**

# GRATIOT VERTICAL ROLLER MILL

**A RECOGNIZED SUCCESS.**

## REDUCTION OF WHEAT TO FLOUR BY GRANULATION.

*Various mills in operation giving better results than other Gradual Reduction Systems.*

*Eighty per cent. of sound sharp middlings guaranteed, out of which 70 per cent. of a high patent can be made, 25 per cent. of a good clear, and only 5 per cent. of low grade flours.*

*Yields equal to those of stone mills. Old mills can be changed over to this system for one-half the cost of any first-class system and with better results. Also specially adapted to small mills. Great saving of power.*

*Millers who are contemplating making a change should write for samples, and if possible call upon us personally and visit the mills in Chicago and vicinity. For particulars address the*

## GRATIOT MANUFACTURING CO.,

**67 WEST WASHINGTON STREET, CHICAGO, ILL.**

# Only Reliable Cockle Separator in the World!

*KURTH'S Pat. Improved Machine,*

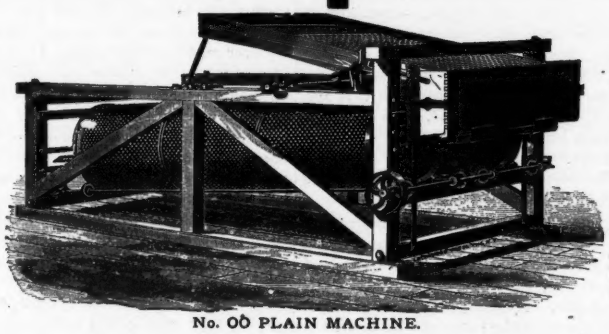
## THE STANDARD.

**Capacity from 15 to 250 bus. per Hour.**

## Over 2000 in Operation.

*Every Machine is Furnished with a Grading Device for Grading the Grain, For which*

**NO EXTRA CHARGE IS MADE.**



No. 00 PLAIN MACHINE.

**Also Built in Combination With**

## RICHARDSON'S

**Double or Single Suction**

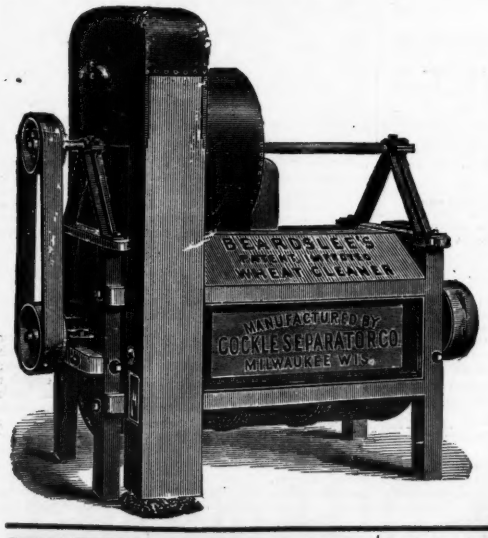
## Dustless Separators

Which we furnish in combination with Cockle Separator at actua *cost* of manufacturing. Parties wanting the *two machines* can buy them combined at about the price of any common dustless separator.

**FULLY GUARANTEED.**

***Universally Adopted by Millers in all Milling Countries.***

**PERFECT WORK. NO WASTE.**




## Beardslee's Pat. Improved Grain Cleaner.

**A PERFECT SUCCESS!**

## The Most Durable Machine in the Market!

***Thorough Cleaning. No Injury to the Grain. Fully Guaranteed.***

*Send for new illustrated catalogue giving you hundreds of testimonials. Address*

## COCKLE SEPARATOR MANUFACTURING CO.,

GENERAL MILL FURNISHERS,

**P. O. BOX 180.** **MILWAUKEE, WIS., U. S. A.**

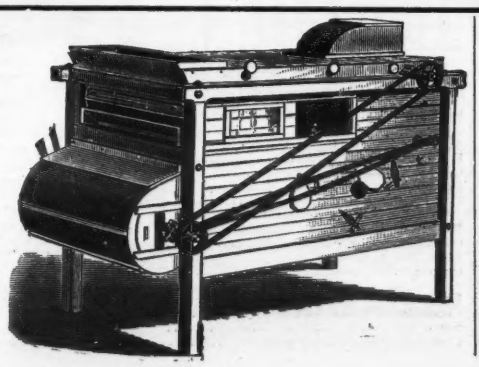
## Rollins' Newly Improved FRENCH MIDDLINGS PURIFIER,

Has as much capacity and is warranted to do as much and as good work as the No. 0 machine of any other make.

**It is fully Licensed under the Smith and all Conflicting Patents.**

Send for new catalogue containing full particulars and names of users in almost every State and Territory.

***CHAS. G. ROLLINS,***
*Minneapolis, Minn., U. S. A.*



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HIGHEST TEST, 85% LOWEST, 82%

This water wheel is now admitted by the best mill owners to be

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**MARK! IT NEEDS NO PENSTOCK**

And thereby saves its cost two times over, besides having it where it can be seen and got at.

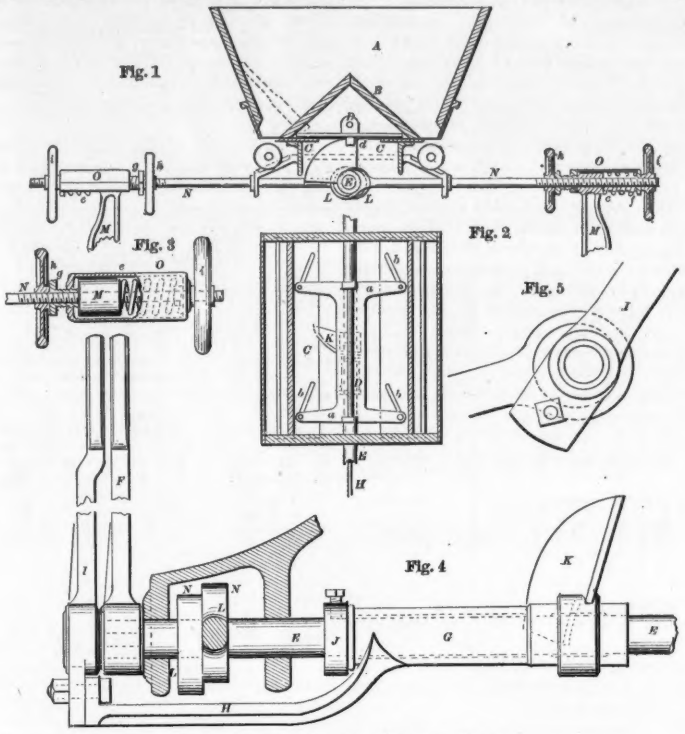
The best and largest and richest mills have adopted it. 100 wheels sold in 1884, 200 sold in 1882, 400 will be sold in 1883. Just think of it, 300 wheels in two summers. It must be a good one to sell so fast. Send for elegant new book.

**C. RIDGWAY & SON, Coatesville, Penn.**

# MILLING PATENTS.

ROLLER MILL.—To John Livingston, Dayton, O., assignor to Stout, Mills & Temple; No. 280,195; dated June 26, 1883. This invention is illustrated in detail by accompanying cuts. Claims: 1. In a roller grinding-mill, the combination, with the coöperating grinding-rollers, the upright pivoted journal-arms the roller-adjusting shafts or rods, adjustable spring connections, hopper-gate mechanism, a through-shaft, and sleeve journaled thereon, of two independent levers and connecting mechanism, whereby upon operating one of said levers the rolls can be thrown apart, or vice versa, and upon operating the other of said levers the hopper-gate will be operated, and whereby both of said levers can be grasped and operated simultaneously. 2. In a roller-mill, the combination, with the connecting-rods and an oscillating through-shaft provided with a lever for operating the outer hand-wheel *i*, female nut *g*, and jam-nut *h*, substantially as described.

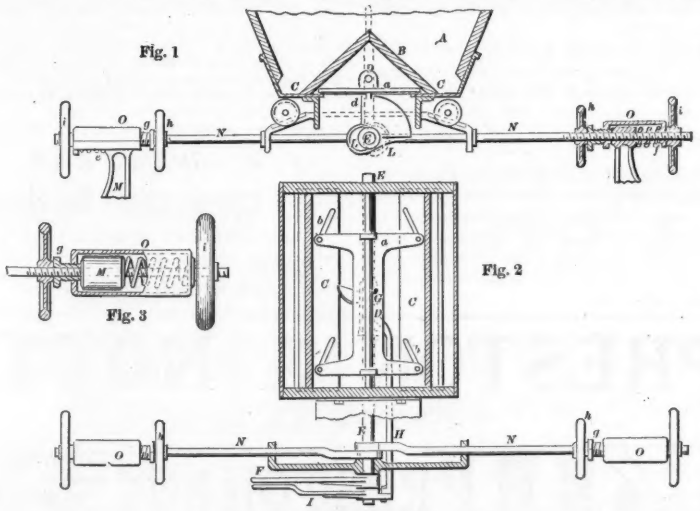
FEED MECHANISM FOR ROLLER MILL.—To Wm. M. Jewell, Denver, Col; No. 280,184; dated June 26, 1883. This device is illustrated by accompanying cuts. Claims: 1. The combination, with the grain-reduction rollers, of a hopper, a series of deflecting distributing-shelves inclined in opposite directions from opposite sides of the machine, and means for imparting to said shelves a shaking or vibratory movement. 2. The case A and the frame B, suspended within the case A, and provided with a series of oppositely-inclined distributing-shelves, combined with a shaft, L, rod *k*, and operating mechanism to impart a vibratory or shaking motion to said frame, and the hopper and rollers of a roller-mill. 3. The combination, of the grain-reduction rollers, a hopper, a frame suspended beneath said hopper and over the rollers, means to shake or vibrate said frame, deflecting distributing-shelves inclined in opposite directions from opposite sides of said frame, and anti-center-




PATENT NO. 280,195; ROLLER MILL.

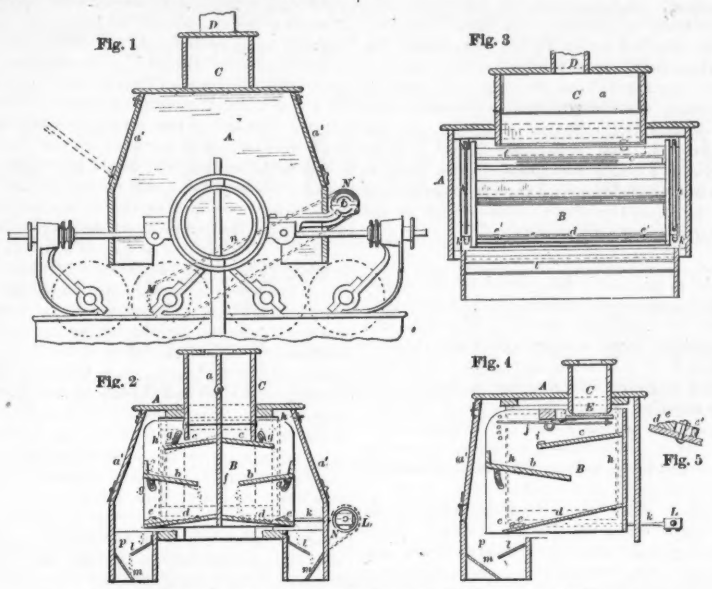
oll supports or journals, of a sleeve journaled upon said through-shaft, and provided with a quadrant-wing, the hopper-gates, the sliding frame, and a lever pivoted upon the through-shaft, whereby the hopper-gate mechanism can be operated without oscillating the through-shaft, and vice versa.

ROLLER MILL.—To H. J. Gilbert, Dayton, O., assignor to Stout, Mills & Temple; No. 280,170; dated June 26, 1883. The invention is illustrated by accompanying cuts. Claims: The combination, with the rods N and journal-arms M, of the spring-housing O, spring *e*, ing ridges or ribs on said shelves. 4. The combination, of the grain reduction-rollers, a hopper, a frame suspended between the two, means to shake or vibrate said frame, and inclined riffles *d*, provided with the adjustable end riffles *e*. 5. The combination, of the grain-reduction rollers, a casing, a hopper, a frame suspended within said casing, between the rollers and hopper, means to shake or vibrate said frame, shelves inclined in opposite directions from opposite sides of said frame, and discharge-spouts having deflecting-shelves inclined in opposite directions from opposite sides thereof.




PATENT NO. 280,170; ROLLER MILL.

FEEDER FOR MILL ROLLS.—To Thos. Reid, Walkerville, Ont., Can.; No. 279,982; dated June 26, 1883. This device is illustrated by accompanying cut. Claims, 1. In a feeding device for mill-rolls, and in combination with such rolls, a feed-roll hopper, a horizontal bar provided with a number of projecting fingers located within such hopper, an upright shaft having an eccentric to which the said bar is connected by a strap, and suitable gearing connecting the said upright shaft with the power. 2. In a feeding device for mill-rolls, the combination, with the hopper-gate, roll B, and agitator C *c*, of the shaft *d*, having eccentric E, the strap *e*, connecting the eccentric with the agitator, and the gearing D, connecting the shaft *d*, with the shaft of the roll.




PATENT NO.280,184; FEED MECHANISM FOR ROLLER MILLS.

## Manitoba Matters.

We take the following from the Winnipeg *Commercial* of the 3d, which is one of the most highly prized exchanges that we receive:

The mills have only been running half time of late. The local demand is all they care to supply, and shipments east have stopped altogether for the present. The demand both in the city and from outside points has been light and quotations are slightly lower, owing to considerable quantities having been shipped to the city from mills in other parts of the province. There are now twenty-six grist mills in the province, and many of them had surplus stocks on hand which they wished to get rid of before the new grain begins to come in. These they have shipped here, which had a temporary effect upon the market. Quotations are: Patents, $3@3.10; XXXX or strong bakers', $2.45@2.55; bakers', $1.95@2.05; traders' or XX, $1.05.

The supply of wheat the past week has been very limited, and the quantity of good wheat in the country is not so large as was expected. There is lots of grain still held by farmers, but a very large proportion is in a damaged condition. The prospects for the coming crop are excellent, and if secured in good condition the home supply will be large. Those best qualified to judge estimate that the amount of wheat to be raised in this country this season at fully 1,500,000 bus. Good hard wheat is now worth 80 cts.

The demand for bran has improved of late both local and outside; and although the stocks held are not heavy, they are sufficient for all requirements. The price is stiff at the old quotation—$10 per ton on the track. There is a good demand for shorts, and the price remains firm at $12 on track.

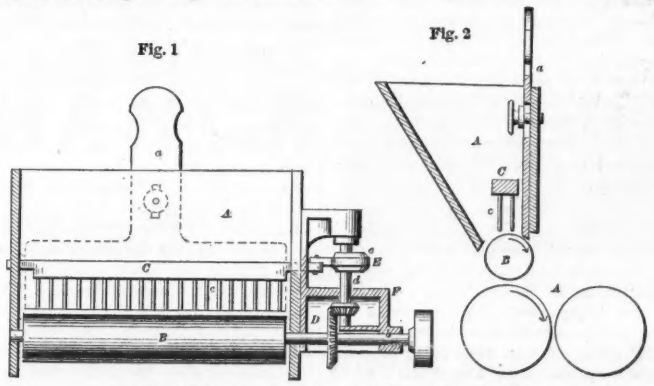
The mills at La Prairie are running full time, and find a good demand for their flour.

Mr. Ogilvie of the Ogilvie Milling Co., visited Calgary last week with a view to selecting a site on which to build an elevator. As soon as the station is definitely located, he will commence the erection of a large grain warehouse or elevator there, keeping a buyer at the place.

R. B. Watson, who ran the grist mill at Pembina Crossing, is about removing to Littleton.

## Pacific Coast Crops.

The continued dry weather, says the *Willamette Farmer*, of Portland, Ore., referring to the crop prospects of the Pacific coast, is unfortunate and will injure the crop to some extent, but the general report from the upper country is, that fall sown wheat will almost invariably bring a fair yield, and much of the spring sown grain promises well. It is pretty certain that east of the Cascades, crops will be fair when sown in the fall. It is probable that west of the Cascades crops will suffer more than to the east because the fall sowing here was entirely winter killed. The exceptions are not worth naming. Spring sowing, after March, does not now promise well, though a good rain would do wonders for late grain and gardens. The common report from prairie lands of this valley is, that wheat sowed in March is looking well, especially the seed brought from California. Without rain, and that soon, all the country will suffer and there will be shortage of hay, oats, and garden stuff. The wheat that promises well will, in all prob-




PATENT NO. 279,982; FEEDER FOR MILL-ROLLS.

ability, be of excellent quality. The export surplus may be less than was anticipated last spring, but there will be large shipments from the Columbia river.

## ROUGH NOTES.—XXXII.

FROM A WORKING MILLER'S POCKET BOOK.

In the last number was begun the consideration of the various reductions in the mill and the direct relation of the separating machinery thereto. It went so far as to consider the first reduction, though nothing was said directly about the grinding. After the stock leaves the first break scalper it frequently goes through an aspirator on its way to the first break machine. These aspirators are constructed like the aspirating middlings purifier, though they do not need to be so fine in adjustment. This machine may take out a little light bran, though very little, there being very little detached during the first reduction. But if there should be any wheat which had not been separated from the heads or chaff in threshing, the first reduction will complete this work, and the aspirator will draw out the white caps. But really there is not a great work for a first break aspirator to do, the reduction not being severe enough to detach any of the impurities of the wheat which would not go through the scalper.

***

After this stock has passed to the second break machines it cannot but be free from flour and middlings, providing of course that the first break scalper has been properly clothed and is of sufficient length. Speaking of its length reminds me that I neglected to say anything about the length of the first break scalping reel in the last notes. A reel six feet long will make a complete separation for a 500 barrel mill on soft winter wheat, and I believe that a reel two feet long would do the same thing on a hundred barrel mill, though it would not give the scouring or detaching action which was mentioned in connection with this reel. Two feet might be a little short where the stock is spouted into the reel in such a way that it does not discharge close to the head, but it would be safe, I think, to say that where the stock has full benefit of two feet of the reel that it would no doubt do its work well of scalping but little scouring.

***

Sometime since I made up my mind that ten corrugations to the inch was the proper thing for the second break, and having used both ten and twelve I am still persuaded that the former is the best. Such a corrugation cannot make but little flour no matter how close the grinding; and whereas it is not desirable to grind close on this break there are circumstances which demand closer work one time than another both in the first and second breaks. This is when the wheat is soft. The first break is more of a purification than the following wheat breaks. The second break makes large heavy middlings and a small proportion of flour. The grinding on these two breaks has a great deal to do in influencing the quality of the work done on the subsequent breaks. When the wheat is soft, as intimated before, it requires that the grinding be closer in order that the third, fourth and fifth breaks may not have so much to do that they will make soft, flat middlings.

***

The scalping reel for the second break should be one-third longer than that for the first. An eight-foot reel will do the work on a 500 barrel mill. Three or four feet will do for a 100 barrel mill. The length of the scalping reel for any break is dependent upon the proportion of soft stock going into that reel, and for a mill with four breaks which makes 100 barrels of flour per day, as is often the case, longer scalpers would be required than are here specified. Owing to the greater amount of work required of each reduction, and consequently the larger proportion of flour stock made, a larger reel would be necessary. It is quite common to build scalping reels all in one chest, and consequently all of one length. I cannot see the good reason in this, as a reel which would be long enough for the third or fourth break would be too long for the second and not long enough for the fifth or sixth. Or, if they were long enough for these breaks, they would be too long for the others, and as has been said before, it is nearly as important that the scalping reels after the first break should not be too long as that they should be long enough. If too long, they would whip through fine bran and other impurities at the tail, beside making flour in the reel.

As a ten corrugation will make a good many ooo middlings, and as ooo middlings from the second break are bright, if of good quality, it suggests the clothing of that scalping reel with No. 20-wire cloth, which was the same as used for the first. One might say that if a second break with ten corrugations requires a No. 20 wire cloth on the scalping reel, the eight corrugations of the first would demand coarser than 20 wire for the first break. So it would if coarser middlings than the ooo were desirable in the mill. The oooo middlings, which would be equivalent to those from an 18 wire, as said in the last notes, have large adhering portions of bran and are not of a quality readily disposed of in the manner usual with middlings. Twenty wire was used for the first break on this account, but if the natural demand of the corrugation had been considered, without reference to the quality of the middlings, 18 wire would have taken its place. Twenty wire is the natural demand of ten corrugations, and as the product of middlings from that number is desirable it is so clothed. The product of the second break is bright, clean stock when the preceding first break has been run sufficiently close. I remember that two or three years ago when the stock from the various breaks was under discussion a miller was advised to bolt his third and fourth break, chop together after leaving the scalper and the second and fifth by themselves. This was in a large mill, and where it was possible to do this if there was any advantage to be gained by such an arrangement. I do not know whether this advice was followed or not, but I am sure that it was not right. If there are to be any divisions at all of this kind, as there may profitably be in a large mill, it does not want to be done by running the second and fifth together. As a matter of fact there are no two breaks which are alike. The third and fourth are the nearest but the others are widely different one from another. It would be better policy to handle the second and third break together than it would the second and fifth. But the second, third and fourth are near enough alike to be handled together in separating the flour and in the purification of the middlings. This part of the description will be handled later. The flour from the second break is white and granular. It has a rounder, sharper feeling than that of any other break.

***

The stock passing over the tail of the second break scalper goes to the third break of course. In some instances it passes through an aspirator. The idea of an aspirator is to take out the light, fine stock and thin, fly-wing bran which may be detached during the process of reduction. In the later reductions there may be some finished bran to be taken out, which, if it continued to the end would be cut up and thus be injurious to the flour made by these machines. In fact this would be the case in the reduction of any of the impurities which were specified as being such as it was desirous of taking out by the aspirators. These machines are nothing more or less than purifiers. They take out the impurities which are of less specific gravity than the unfinished break stock. They remove the stock which should not go in with the subsequent breaks. They take out finished feed which would otherwise be pulverized with the flour. But there is another side to this question; at the same time that they take out these impurities they draw out flour and mix it with the undesirable stock or blow it into the dust room. One might say that there should not be flour in the stock which tails over the scalpers to go to the aspirators. But, as I am informed by others and as my experience leads me to be believe, I think that the fact of the stock showing clean as it leaves these reels does not necessarily imply that it does not contain flour in a shape to be taken out by the aspirators. The unfinished break stock may have this flour enclosed in the various particles composing that stock and which was not disturbed or knocked out in the reel, but when submitted to the action of a suction fan will come out in surprisingly large quantities. One of the purposes of a dismembrator is to open up the stocks and make the separation which is not made in a common reel. Here again comes the query whether or not the dismembrator or agitator does not mix a dangerous proportion of the impurities of the wheat with the flour and middlings stock. It is a question with which I have no experience and consequently one which I can not answer. As opposing the idea of a dismembrator or even the action of a reel is the sieve scalper, which is certainly the gentlest means of making a separation. The Smith Purifier Co., formerly made, and may be making now for all I know, what they call a Break Purifier. The idea was certainly a good one as they arranged it. After the stock left the rolls it first went through a reel to take out the flour and finest middlings, say that which would pass through a 3 or 4 cloth. The part which tailed over this reel goes onto the break purifier mentioned, which I understand is similar to the Smith Middlings Purifier, though not so elaborate in detail. This machine aspirates and grades the coarse middlings at the same time that it takes the impurities formerly mentioned from the stock which goes to the next reduction. This is a good scheme and ought to work well if properly arranged and worked out. I suppose that there are a number of mills which are using this arrangement, though I happen to have information as to the operation of only one such mill. It bears me out in all that I have said.

If a machine could be constructed to combine the various processes in a compact form without sacrificing their efficiency it would be a great desideratum. Screens, suction and blast fans are good as far as they go, but they are from necessity limited in their power, as a very small stream of wheat only can be cleaned in a suction fan, and if more is required the fans must be multiplied or the operation repeated several times.

While we have better arranged mills than those with which we compete abroad, we should not be satisfied. They should be much better, so that by economy in manufacture, and by the superiority of our flour we will make it to the interest of our exporters to send abroad the manufactured in preference to the raw material.

A mill should always be constructed more with a view of holding machinery than to become a warehouse for the storage of grain.

## MILLING NEWS.

Asmuth's elevator and the Eagle mill at Brandon, Wis., were recently unroofed by a wind storm.

High water in the Kalamazoo river in Michigan, has done considerable damage, several dams being taken out.

H. O. Kenyon & Co., a grain commission firm of Chicago, were lately forced to suspend by a heavy decline in wheat.

The stock of flour in Chicago on the 1st, was 56,664 barrels, against 62,972 barrels a month ago and 60,055 barrels a year ago.

The Ohio board of agriculture estimates the wheat crop of that state at 22,300,000 bus., which is 57 per cent of an average crop and about 50 per cent of last year's crop.

The stock of flour in New York at the close of June was estimated at 198,524 bbls. by the *Produce Exchange Reporter*, being about equally divided between spring and winter wheat brands.

John C. Donahue, a miller, committed suicide at Marysville, Mo., on the 5th by shooting himself through the head. He leaves a wife and four children, and an insurance of $8,000 on his life.

New mills are built which have no other storage room than that which is afforded in the same building. This is all wrong, as no machinery can run properly under the varying effects of a greater or less amount of wheat stored in the same building, and on the same foundation.

## MARKETS.

MINNEAPOLIS, July 11.

The leading grain markets have been nervous and unsettled during the week ending to-day, and prices average lower. The speculative element has been on the alert for any developments affecting the market and dealers evince considerable caution. Much interest is now centered on the condition of the growing grain and crop scares have more or less effected values. It is useless to disguise the fact that much apprehension has been felt for some time as to the spring wheat crop in certain localities. Authentic advices from central and southern Minnesota and southeastern Dakota are fairly satisfactory, but the reports from the Red River valley are not at all flattering. The want of rain throughout the valley has been very seriously felt, and should the drought continue much longer it will be uselees to expect a very bounteous crop from that portion of the hard wheat section.

In the local market good milling wheat has been in demand, but the supply has been comparatively light and prices have been fairly maintained. The range between grade and off grade wheat is becoming wider and the greater part of the latter has to be sold at prices on a shipping basis. Coarse grains have been in liberal supply and prices rule easier. Choice white and mixed oats are in fair demand, but receipts are mainly of an inferior quality. A good demand exists for bran and shorts, though prices are held somewhat above a shipping basis except to local points. The following were the highest and lowest prices on 'change during the week ending to-day, together with to-day's closing prices :

| WHEAT. | Highest. | Lowest. | Closing |
|---|---|---|---|
| No. 1 hard..... | $ 1.09½ | $ 1.08 | $ 1.09½ |
| " 2 " ..... | 1.05 | 1.03 | 1.04 |
| " 1 Northern ... | 1.04 | 1.03 | 1.04 |
| " 2 " ... | .98 | .96½ | .98 |
| " 1 hard seller the year .. .... | 1.05 | .1.03 | 1.04 |

The flour market is lower and duller. A better feeling was manifested Friday and Saturday, but the breek in wheat at Chicago again depressed the market, The inquiry from abroad has fallen off, and amounts to comparatively nothing. About all markets are heavily stocked, which has a depressing effect. The best Minnesota patents are quoted at $6.80@6.90 at Chicago, and $7.25@7.40 at New York. Local quotations are: Patents, $6.75: straights, $5.40@5.55: cerals, $4.65@5.10: low grades, $1.65@2.65.

**F. W. COMMONS & CO.,**

**Grain Commission Merchants**

AND SHIPPERS OF MILL FEED.

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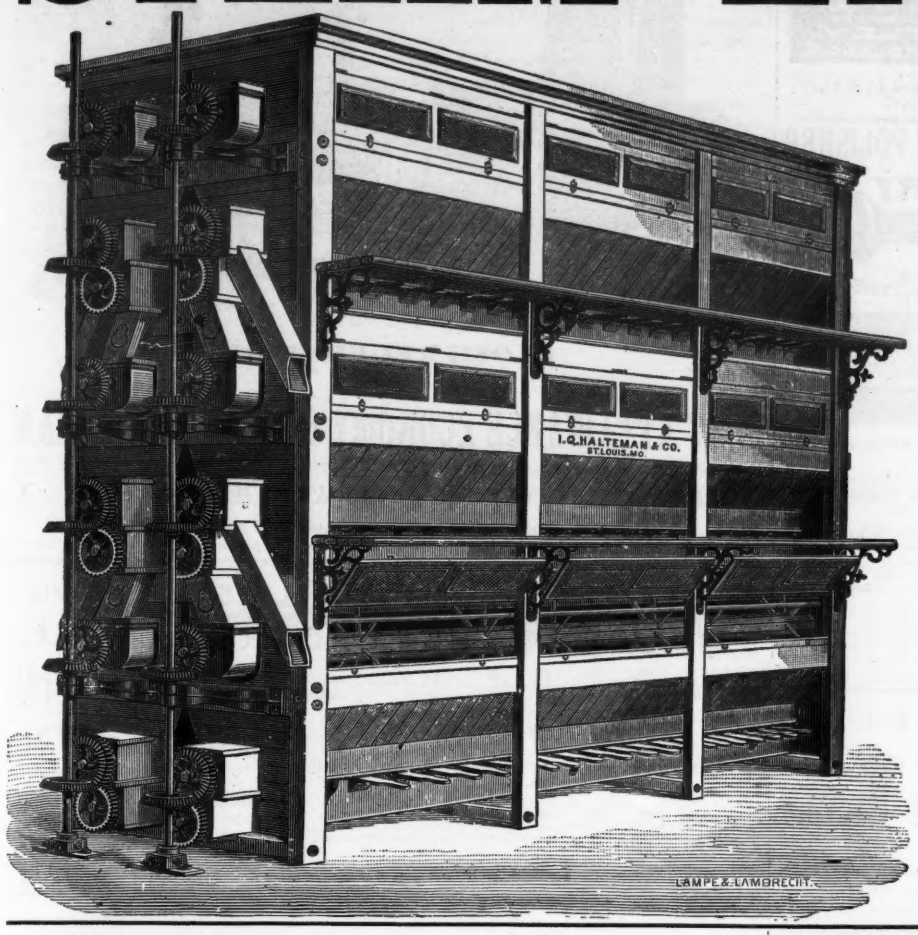
## FLOUR MILL MACHINERY

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***Wheat Scourers and Wheat Brush Machines***

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## UPPER RUNNER PORTABLE MILLS,

*which are also made double geared. In addition to these we make the boss line of Under-Runners, and if you wish to see cuts, descriptions, and prices of all, send for our Price and Pattern List, which also shows up our fine line of*

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If you wish, we will send you our Illustrated Treatise on Wire Rope Transmission, which is a rapidly developing method of carrying power long distances.

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***Magnetic Grain Separators.***

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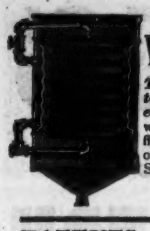

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## WHEAT HEATER!

***Thoroughly and properly toughens*** the bran on the ***hardiest*** or ***driest*** wheat; heats the wheat ***evenly*** and improves the flour and milling generally, as no other Heater in the market does. Send for Circular.

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Send for catalogue and price list.

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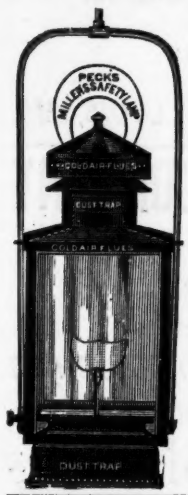
## PECK'S Millers Safety Lamp

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**Insurance policies made in their favor.**

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No seams to burst; no corners to catch or clog; "takes" easily and delivers promptly—not liable to carry down the back leg.

***Shovel-Edge, Curved Heel, Smooth Finish***

and freedom from projecting seams, rivet heads, bands, etc., make it run easy, save power, reduce strain or wear and tear of belting, etc.

***IT IS STRONG AND DURABLE,***

Will outwear three or four hand-made buckets.

It meets the advanced ideas of the times successfully, and is nearer perfection in every respect than any other bucket made.

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For facing down high places on the buhr, this tool has no equal, and can be done much better and in one sixth the time than with the mill pick. It is much larger, cuts better, can be used on either face or furrow; can be used until the corundum is entirely worn out on one side and then turned on the other side Has over four times the amount of corundum, and when the corundum is worn out can be replaced in the handle at a small cost. Sent by express, $3.50 Satisfaction guaranteed or money refunded. Address

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Recommended as a superior chain belting having greater wearing surface, and in connection with the Friction Roller, longer lived, than any similar belting.

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Send for catalogues and price list.

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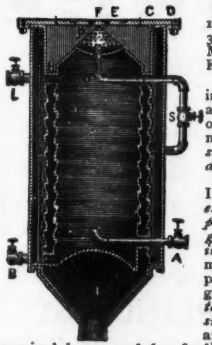
**Wheat Heater and Steamer.**




Patented Sept. 27, 1870. Re-issued Aug. 31, 1880. Re-issued May 17, 1881. Patented Feb. 28, 1882.

Millers please examine the 1st and 9th claims and then ask yourselves or attorneys if all other machines used for the *same purpose are not direct infringements.*

FIRST CLAIM.—The Improved Milling *Process* or *processes of preparing grain for grinding and feeding* it to a grinding mill, which consists in passing it by its own gravity *over or in contact with a heated surface,* thus drying and heating it to the required degree, and then feeding it to the *buhrs or rolls while still hot,* substantially as and for the purpose hereinbefore set forth.

NINTH CLAIM.—An apparatus for use as specified, grhich when suspended vertically is adapted to receive wain, and allow passage and discharge of same by its own gravity, and is provided with a chamber or chambers for receiving steam for the purpose of heating the grain as it passes in contact with the heated walls, as set forth. Address

**C. T. HANNA,**
*General Mill Furnisher, Contractor & Builder,*
39 Water Street PITTSBURGH, PA.

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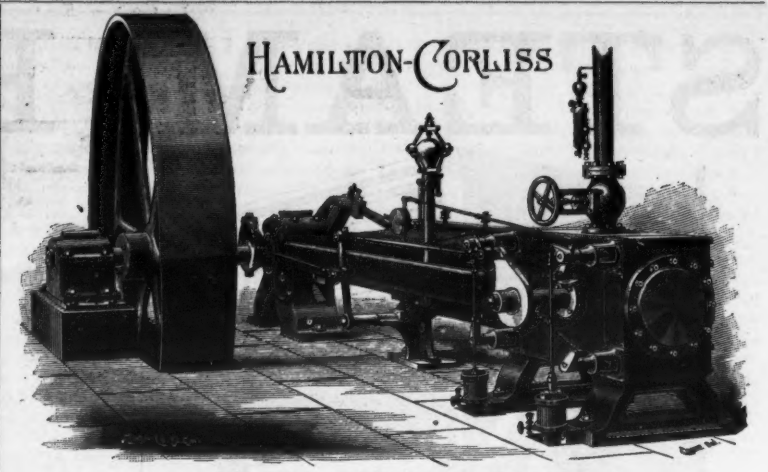


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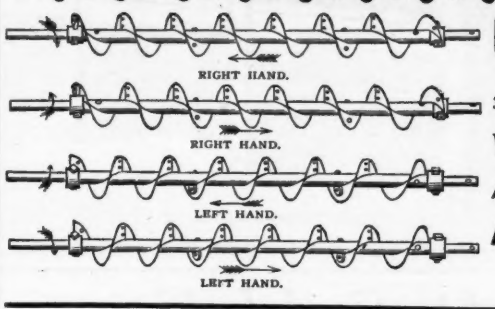
## CALDWELL CONVEYOR

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**Carried in Stock.**

3 in., 4 in., 6 in., 9 in., 12 in. and 16 in.

**Warranted not to Injure Flour.**

Order from cuts shown as wanted.

***AVOID THE INFRINGEMENT.***

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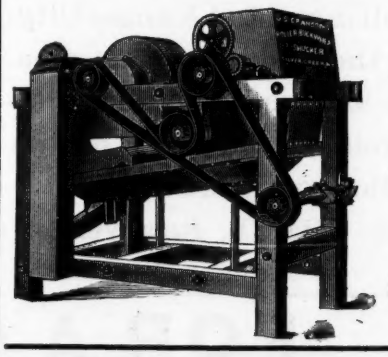

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Capacity 12 to 60 Bus. per Hour.

***Every Machine Guaranteed***

To Give Satisfaction or No Sale.

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# TRADE TALK.

*This column is open to all regular subscribers to the Northwestern Miller, and all questions will be answered by competent practical millers at the publisher's expense. Unless signed by the editor, all matter published is given as the expression of individual opinion, for which the Northwestern Miller assumes no responsibility. Subscribers asking questions or criticising matter appearing here or elsewhere in the Northwestern Miller, may use initials or such signatures as they may select, but every letter must be accompanied by the full name of the writer, as only bona fide communications will be printed. The fullest criticism of anything and everything appearing in the paper, in this department or elsewhere, is invited.*

J. J. Girard, Minneapolis. "I humbly beg Mr. Emerson's pardon for addressing him in so familiar a manner, as by his apprenticed name. I hope the offense will be forgiven. I will promise in the future to address him as becomes a master of the art; one that has passed the rough road of apprenticeship to fellow craft, been raised and now wears the jewels. Mr. Emerson says he had a perfect knowledge of what he was writing about when he rushed into print. I think he did not, or he certainly would not have made the statement that the plan showed bakers' flour taken from low grade stock, ground on No. 2 stone. He now says that has nothing to do with the case. I would say to Mr. Emerson, that it is all there is of the case, all that caused me to take any notice of his criticism. He says the hole I am trying to crawl out at is a little too small. If it was not for depriving the milling fraternity of so brilliant a light, I would make the hole a little larger and let him crawl in. If Mr. Emerson can find no other fault with a mill than that the low grade stock is too poor, I think it a poor subject to make so much fuss about. Mr. William Emerson (not Billy the apprentice,) says, that none of the competitors complied with the conditions of the problem, and that he knows exactly what the short crop millers want. Now, Mr. Editor, can you not induce Mr. Emerson to part with his wonderful knowledge through your valuable paper, for the benefit of the short crop millers?"

***

H. W. G., Anoka, Minn. "What will be the effect of putting dust collectors on my purifiers? I am convinced that they are a good thing in keeping dust room stuff of different kinds separate and saving room, but I want to know how they act on purifiers, whether they choke up the suction or not, etc." So far as our observation goes the placing of dust collectors directly on top of purifier frames has proven a benefit in making the purifier work more evenly. That is in making the suction more even over the whole surface of the sieve which is of course desirable. With the ordinary fan on top of the purifier, all the air must pass through the two wind holes at its sides, each being about a foot in diameter. Although provision is made in the purifier for preventing the air drawn in by the fan all being taken from the point directly under it, it is natural for air in motion to take the shortest course and its tendency is to draw more up through the center of the sieve than nearer the end. This tendency is largely overcome by the use of the dust collector as the opening in its bottom, and in the top of the purifier is about three by four feet in size, all of it, except about one foot by three taken up by the conveyor box, being available and acting as a suction trunk. This naturally distributes the suction over a larger surface and makes it work lighter and more evenly. This corrects a tendency, sometimes noticed, to take up good stuff from the center of the sieve, and is a noticeable benefit.

***

J. B., Newcastle, Del. "I would like to get a good reliable cement for leather. I have tried several cements, but they cannot be relied upon. Can you give me a recipe?" The following is recommended: When pieces of leather are to be cemented together, which are not subject to traction or need not sustain heavy weights, common glue will probably be the best binding substance; for thin leather, ordinary flour paste may also be used. If the leather is subjected to a moderate strain, the following method may be used: Soak equal parts of glue and of isinglass for ten hours with enough water to cover them, then add about one-fourth part of tannin, and boil until the mixture becomes sticky. The surfaces of the leather must first be roughened with some coarse tool; they are then well rubbed with the above mixture, while warm, and firmly pressed together. After a few hours they will be found united. Or glue (8 parts) may be soaked with water until soft, the excess poured off, and the vessel then placed on a water bath until the glue melts. One part of glacial acetic acid is then added, and the mixture transferred to small vials. This liquid glue will also stick leather together very firmly.

An Austrian firm manufactures a glue which is said to be made from the entrails (skins?) of cattle, which goes by the name of dermatin, and is reported to be used in England as well as on the continent. This is said to glue leather together so effectually that the mended place will be as good as new, while it leaves it perfectly flexible.

***

W. B., Texas. What is meant by the correlation of forces as applied to mechanics, particularly friction and traction? "The progressive tendency of modern scientific inquiry has been very clearly shown in the acceptance of the doctrine of the interaction of natural forces, which is quite distinct from the views formerly held regarding the properties of heat, light, electricity and magnetism, which heretofore possessed a vagueness that could not be satisfactory to the student of exact science. The properties of heat have been more thoroughly understood, because it was the oftenest employed or evolved. Our later philosophy has lifted this along with the others into the sphere of dynamics and teaches that they are all revelations of one and the same force, or energy, as some have preferred to term it—which latter word is divided into potential and actual energy, the former meaning attraction, and the latter actual motion. In referring to the theory of the correlation of forces, the terms heat, light, electricity and mechanical motion are used as representing actual energy; and gravitation, cohesion and chemical affinity as potential energy. Every mechanic is acquainted with the fact that friction generates heat. So that if machinery be allowed to run without lubrication the friction generates heat—sometimes enough to cause fire. In explaining this according to the material theory of heat it was assumed by all the scientists up to Rumford that a certain body called caloric was contained among the molecules of all substances, and that by subjecting matter to sudden compression or continued friction this caloric would be made sensible and would give out heat, but Count Rumford noticed the great increase in temperature caused by the friction of a boring tool against the brass of a cannon, the quantity of which was apparently inexhaustible. A very considerable quantity of heat may be excited by the friction of two metallic substances and given off in all directions without interruption. Heat may be said to produce electricity; electricity to produce heat; magnetism to produce electricity, and so on, but while each may produce the other, no one force can be created, but the effect always becomes the cause of the cause. A thing cannot create itself, and each is but a correlated form of one and the same force and capable of mutual conversion. Thus water may assume three forms: solid, as in ice; liquid, as water; and gaseous, as steam, but each is the same substance.

***

John A. Hafner, Pittsburgh, Pa. "I am satisfied that things will change to some extent soon. From all that I can learn the millstone will return after the excitement is over and the fog clears away. I think a great many will find themselves in a swamp. In order to make rollers a success there should not be this general complaint of the bread being dry and tasteless. If people want that they can bleach corn cobs which are much cheaper."

---

A subscriber of Blue Earth City, this state, writes us as follows: "All the mills in this section are custom mills, but are gradually improving, and run day and night. F. W. Dustin will put in break rolls during harvest time. Crops are in excellent condition in this locality, even to corn which is much in advance of this time last year. Wheat is better than for years."

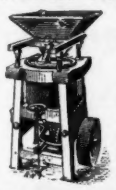
## A Kansas Milling Change, and the Crops.

On the 26th of May, Jackson Bros., of the Cawker City mill, purchased of W. W. Watson his two-thirds interest in the Stockton mill, of Stockton, Kas. Messrs. Jackson Bros., of whom there are five, have earned a solid reputation in the milling fraternity, and are well known as first class millers and thoroughgoing business men. Geo. Randall retains his position as head miller and superintendent of the Stockton mill, assisted by Frank Donabey, of the Cawker City mill. The Stockton mill is located at the county seat of Rooks county, and has gained a good reputation for its product, which finds ready sale in the local markets. Taken altogether, the mill starts off under the new management with a very favorable outlook.

Now that the Kansas wheat crop is nearly ready for the sickle, some definite idea can be formed in regard to the condition of the crop. Much of the wheat was late sown, and the winter being somewhat unfavorable, the prospects in the early spring were not as promising as the previous year. When the spring rains set in, many fields of wheat that were supposed to be killed, came in rapidly. On the first of May our wheat prospects were nearly equal to what they were last year. Since then a few destructive hail storms have swept through the country, and in other parts some fields have been cut short by dry weather. As our acreage is much larger than last year, the probabilities are that we will thresh more bushels than was the case then. OCCASIONAL.

Stockton, Kas., June 28.


STEVENS' FRENCH BUHR
**Feed Mills**



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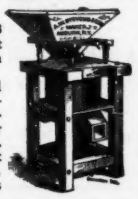

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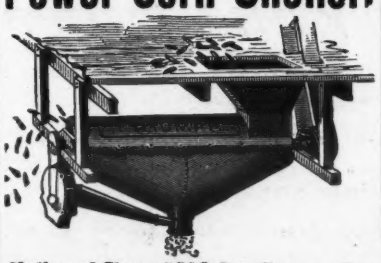
Picks will be sent on 30 or 60 days' trial, to any responsible miller in the United States or Canada, and if not superior in every respect to any other pick made in this or any other country, there will be no charge, and I will pay all express charges to and from Chicago. All my picks are made of a special steel, which is ***manufactured expressly for me*** at Sheffield, England. My customers can thus be assured of a good article, and share with me the profits of direct importation. References furnished from every state and territory in the United States and Canada. Send for circular and price list.

**TRIUMPH**
**Power Corn Sheller.**



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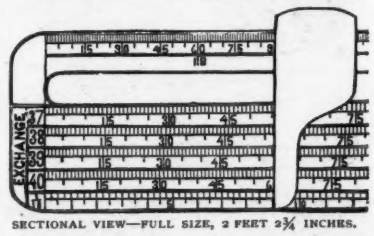


SECTIONAL VIEW—FULL SIZE, 2 FEET 2¾ INCHES.

The above cut shows a section of the *Millers' Toll and Exchange Rule.* This rule is made of wood and so graduated as to show at a glance how much flour to give in exchange for a given quantity of wheat. It is so graduated that exchange can be taken from one pound to six hundred pounds. The opposite side exchanges from thirty-three to thirty-six pounds inclusive. This is as necessary and convenient for every miller to have as a wood rule is to a dealer in lumber—for by its use a miller saves the time in figuring his exchange, and is less liable to mistakes. The cut shows one end of the rule which is two feet long by two and three-fourth inches wide. This is the most useful article in a mill. There are hundreds of them in use in all parts of the United States and Canada.
Sent to any part of the United States by mail, post paid, on receipt of $2.00. Satisfaction guaranteed or money refunded. Addresss
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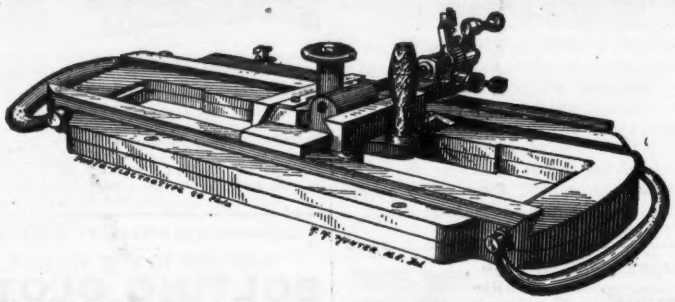

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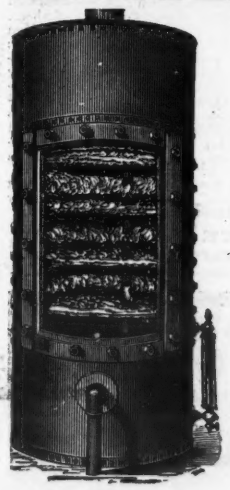

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*Is the only Lime Extracting Heater that*

WILL PREVENT SCALE IN STEAM BOILERS,

Removing all impurities from the water before it enters the boiler.

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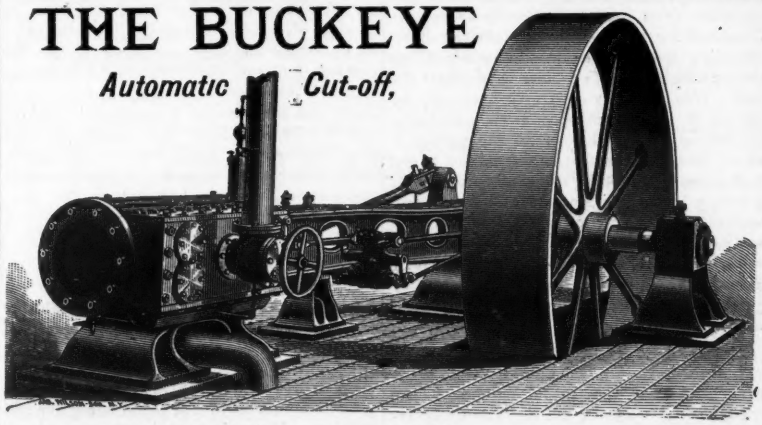

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